

Workshop Manual

Octavia II 2004 ➤

Octavia II 2010 ➤

Heating, Air conditioning

Edition 11.2011

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List of Workshop Manual Repair Groups

Repair Group

80 - Heating

82 - Supplementary heating

87 - Air conditioning system

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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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80 – Heating

1 Summary of components, disassembling and assembling the heater unit

⇒ „1.1 Summary of components“, page 1

⇒ „1.2 Disassembling and assembling the heater unit“, page 3

1.1 Summary of components

1 - Dash panel

- ☐ Removing and installing
⇒ Body Work; Rep. gr. 70

2 - Centre vent

- ☐ removing and installing
⇒ page 5

3 - Outer dash panel vent

- ☐ removing and installing
⇒ page 5

4 - Re-circulating air flap control motor -V113-

- ☐ removing and installing
⇒ page 14

5 - Footwell vent front passenger side

- ☐ removing and installing
⇒ page 7

6 - Flex shaft

- ☐ for positioning unit for air distribution flaps
- ☐ removing and installing
⇒ page 10

7 - Series resistor for fresh air blower with overheating fuse - N24-

- ☐ removing and installing
⇒ page 13

8 - Fresh air blower -V2-

- ☐ removing and installing
⇒ page 13

9 - Shield for heater unit

- ☐ removing and installing ⇒ page 2

10 - Dust and pollen filter

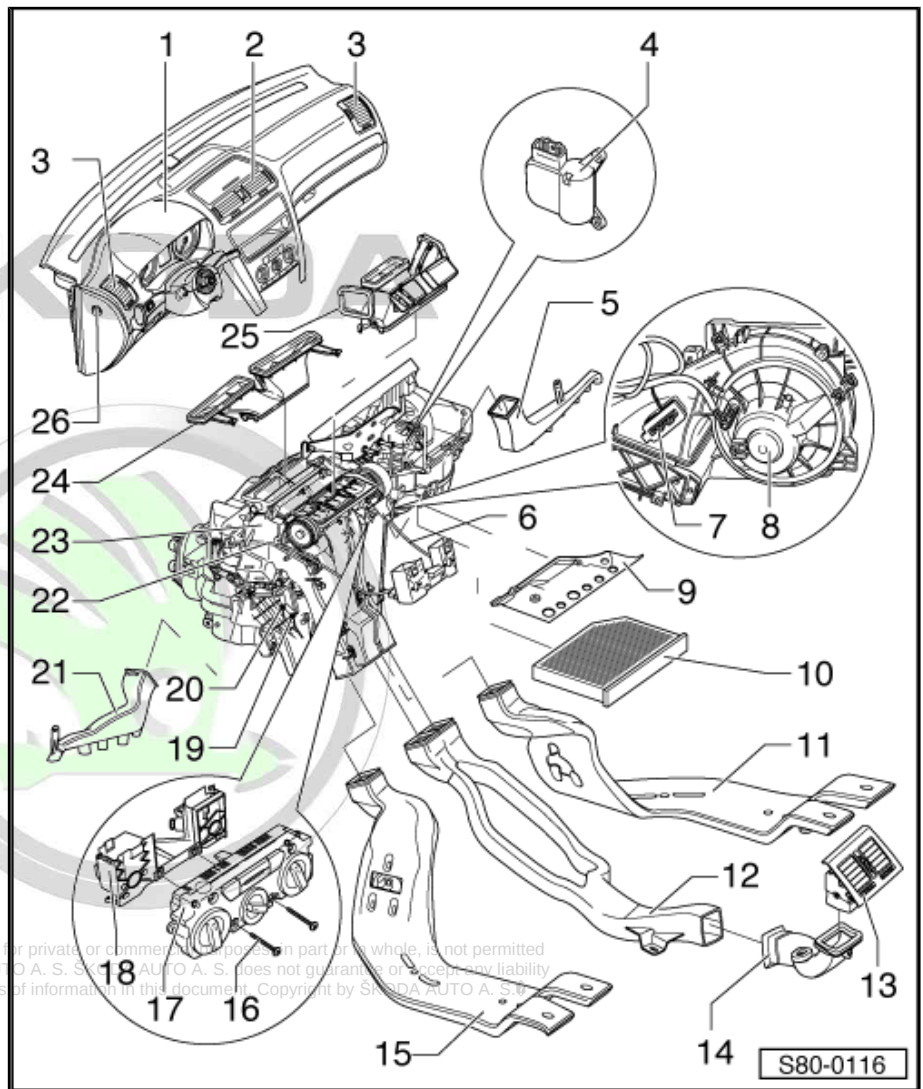
- ☐ Also filter version with odour insert, see ⇒ Catalogue of Original Parts
- ☐ removing and installing ⇒ page 14

11 - Rear duct of right footwell

- ☐ removing and installing ⇒ page 6

12 - Center rear duct

- ☐ Removing and installing ⇒ Body Work; Rep. gr. 68





13 - Center rear vent

- ☐ removing and installing ⇒ [page 6](#)

14 - Air deflector

- ☐ for center rear vent

15 - Rear duct of left footwell

- ☐ removing and installing ⇒ [page 6](#)

16 - Screws, 1.5 Nm

- ☐ 8 pieces

17 - Heater control

- ☐ removing and installing ⇒ [page 9](#)

18 - Adapter for heater control

19 - Heating element for air auxiliary heating -Z35-

- ☐ removing and installing ⇒ [page 19](#)

20 - Heat exchanger

- ☐ removing and installing ⇒ [page 15](#)
- ☐ replace coolant after changing the heat exchanger

21 - Footwell vent driver's side

- ☐ removing and installing ⇒ [page 7](#)

22 - Bowden wire for temperature flap

- ☐ removing and installing ⇒ [page 11](#)

23 - Heating

- ☐ removing and installing ⇒ [page 21](#)
- ☐ disassembling and assembling ⇒ [page 3](#)

24 - Intermediate piece for defroster duct

- ☐ placed onto the distributor housing and secured with a clip on the cross member - dash panel
- ☐ for removing, take out dash panel

25 - Intermediate piece for dash panel vents

- ☐ placed onto the distributor housing
- ☐ for removing, take out dash panel

26 - Vent duct

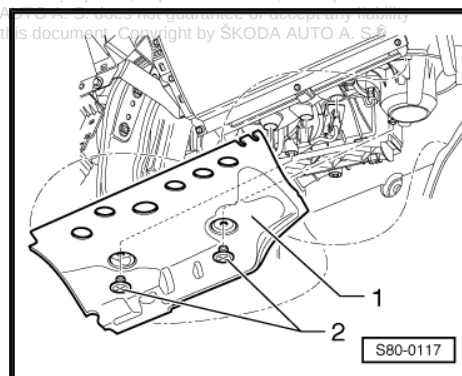
- ☐ for window blower in the door
- ☐ Part of the cover

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Remove shield for heating and air conditioning unit

- Unscrew the plastic screws -2- and remove the shield -1-.



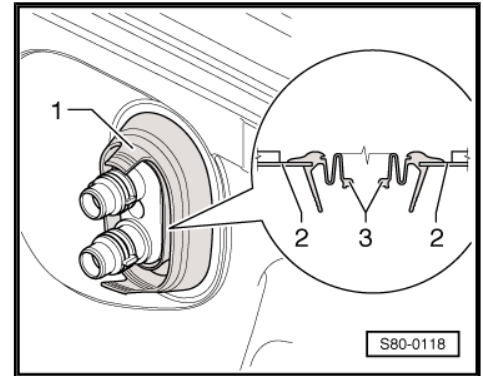
Fitting position of the seal for heater unit/engine compartment

- First of all insert seal for heater unit/engine compartment -1- into the front wall -2- and then pull the sealing lip -3- into the groove of the heat exchanger.



Note

In order to prevent water leaking into the interior of the vehicle, pay attention to the fitting position.



1.2 Disassembling and assembling the heater unit

1 - Positioning unit for temperature flap

- ☐ removing and installing
⇒ [page 15](#)

2 - Support

3 - Cover

4 - Re-circulating air flap control motor -V113-

- ☐ removing and installing
⇒ [page 14](#)

5 - Housing for air inlet

- ☐ with re-circulating air flap

6 - Heater unit

7 - Fresh air blower -V2-

- ☐ removing and installing
⇒ [page 13](#)

8 - Series resistor for fresh air blower with overheating fuse - N24-

- ☐ removing and installing
⇒ [page 13](#)

9 - Dust and pollen filter

- ☐ Also filter version with odour insert, see ⇒ Electronic Catalogue of Original Parts

- ☐ removing and installing
⇒ [page 14](#)

10 - Cover

- ☐ for dust and pollen filter

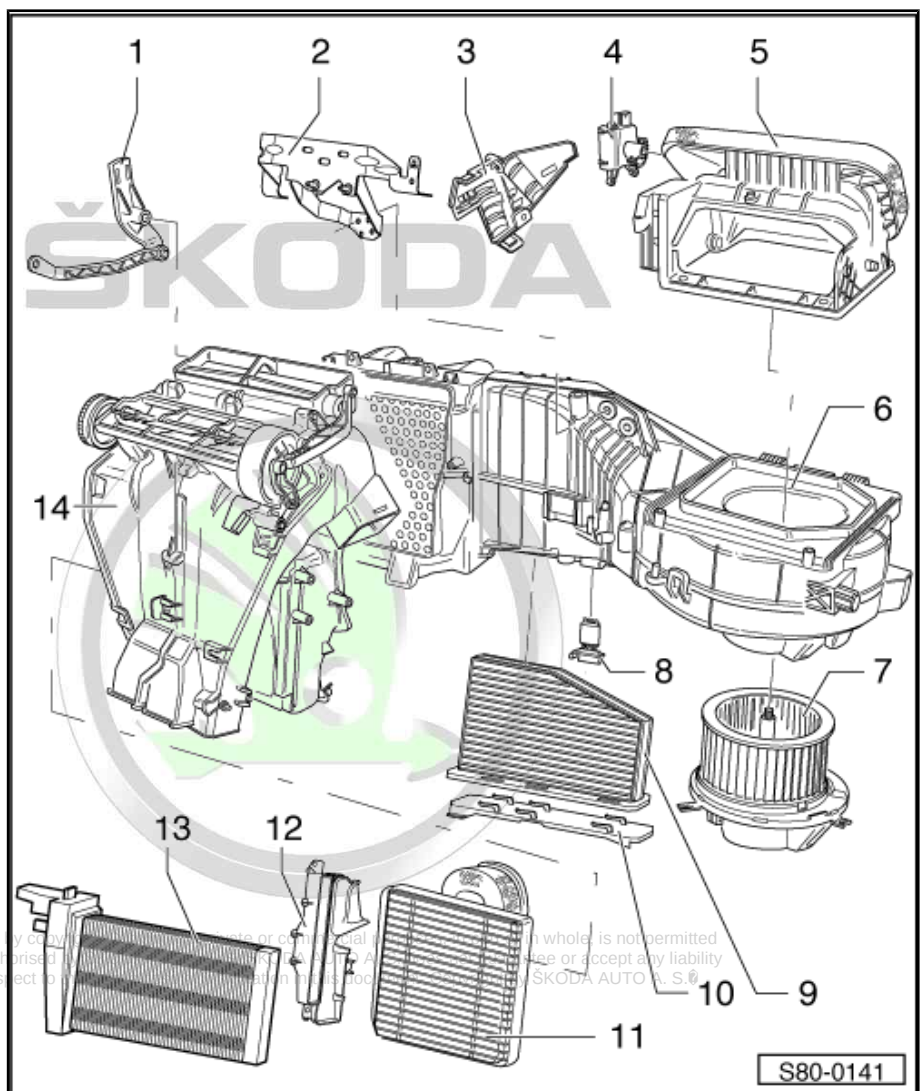
11 - Heat exchanger

- ☐ removing and installing ⇒ [page 15](#)

12 - Heat exchanger trim panel

13 - Heating element for air auxiliary heating -Z35-

- ☐ only fitted on certain models
- ☐ removing and installing ⇒ [page 19](#)





14 - Distributor housing

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2 Dash panel vent and air guide ducts, ventilation

⇒ „2.1 Removing and installing centre vent“, page 5

⇒ „2.2 Removing and installing the right/left side vent“, page 5

⇒ „2.3 Removing and installing rear vent“, page 6

⇒ „2.4 Removing and installing the rear duct of the right and left footwell“, page 6

⇒ „2.5 Remove and install footwell vent“, page 7

⇒ „2.6 Inspecting ventilation“, page 7

⇒ „2.7 Removing and installing air intake grid“, page 8

2.1 Removing and installing centre vent

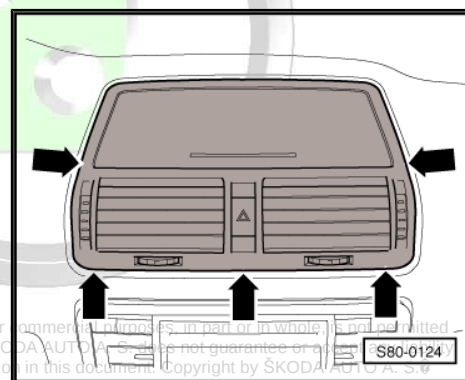
Removing

- Use disassembly wedge -3409- to carefully lever out in the area of the retaining clips -arrows-.
- Unplug connector from warning light switch.

Install

When installing, ensure that the retaining clips are correctly fitted, if necessary bend them slightly.

- After installing check the vents for easy adjustment.



2.2 Removing and installing the right/left side vent

Removing

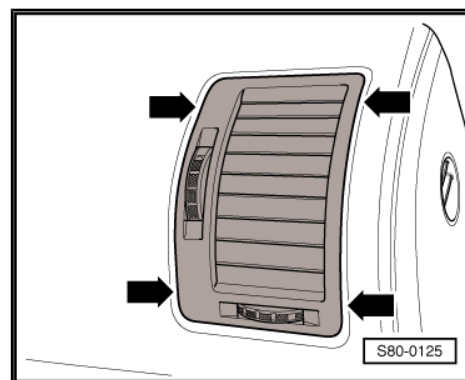
- Open all the fins of the vent.
- Use disassembly wedge -3409- to carefully lever out in the area of the retaining clips -arrows-.
- Swivel the vent towards the center out of the opening.

Make sure when removing the side vent that the controls for the adjustment are not damaged.

Install

When installing, pay attention,

- ◆ that the retaining clips are correctly fitted, if necessary bend slightly,
- ◆ that the controls for the adjustment are not damaged.
- After installing check the vents for easy adjustment.





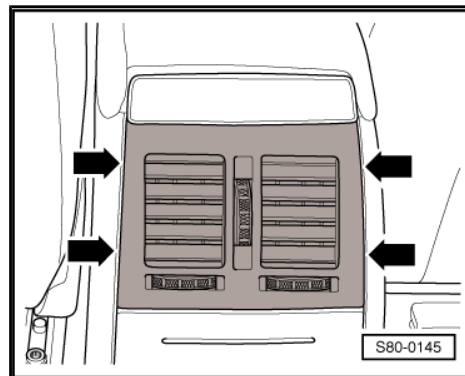
2.3 Removing and installing rear vent

Removing

- Use disassembly wedge -3409- to carefully lever out in the area of the retaining clips -arrows-.

Install

- Clip the vent back into the assembly opening.
- After installing check the vents for easy adjustment.



2.4 Removing and installing the rear duct of the right and left footwell



Note

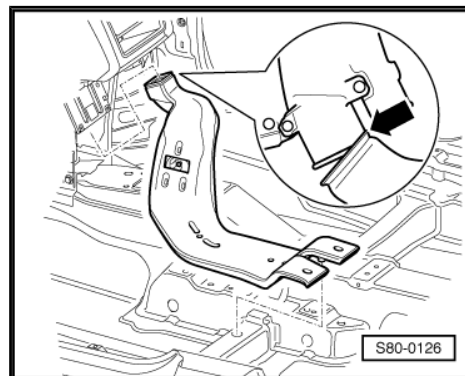
Proceed in the same way to remove the rear ducts on either side, but reversed.

Removing

- Remove the front passenger or driver's seat ⇒ Body Work; Rep. gr. 72 .
- Remove the centre console ⇒ Body Work; Rep. gr. 68 .
- Remove the attachments of the front floor covering ⇒ Body Work; Rep. gr. 70 .
- Lift up floor covering, unclip rear duct from cross member and pull off from heater unit.

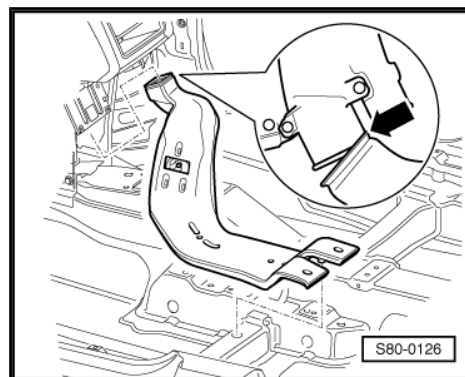
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

When installing the rear duct make sure that the rear duct is first of all pushed onto the heater unit -arrow- and then clipped into the cross member.



2.5 Remove and install footwell vent

⇒ „2.5.1 Removing and installing the footwell vent on the driver's side“, page 7

⇒ „2.5.2 Removing and installing the footwell vent on the front passenger side“, page 7

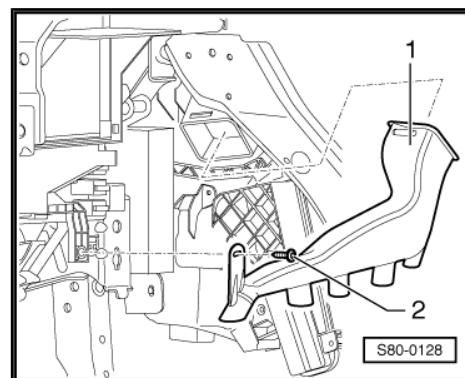
2.5.1 Removing and installing the footwell vent on the driver's side

Removing

- Remove the bottom part of the dash panel insert and the trim panel on the driver's side ⇒ Body Work; Rep. gr. 70 .
- Unscrew fixing screw -2- and remove footwell vent -1-.

Install

Installation is carried out in the reverse order.



2.5.2 Removing and installing the footwell vent on the front passenger side

Removing

- Remove the glove compartment ⇒ Body work; Rep. gr. 70 .
- Unscrew fixing screw -2- and remove footwell vent -1-.

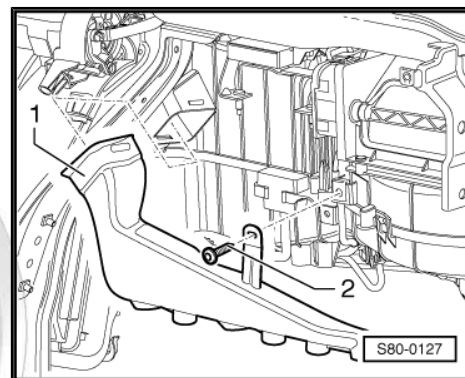
Install

Installation is carried out in the reverse order.



Note

On vehicles with glove compartment cooling, pay attention to the correct position of the hose.



2.6 Inspecting ventilation

- Remove rear bumper ⇒ Body Work; Rep. gr. 63 .

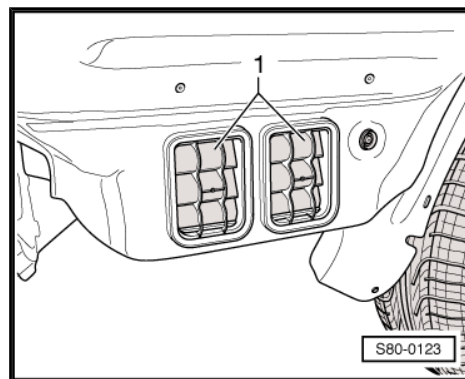


- The sealing lips -1- in the ventilation frame must be free and close independently.
- Check fitting position.



Note

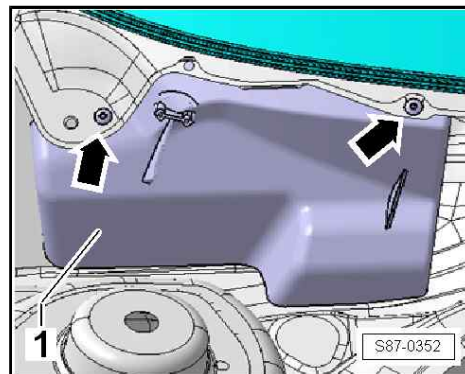
For Octavia the two ventilation frames are located on the right vehicle side, for Octavia Combi one ventilation frame is located on the right side and one ventilation frame is located on the left vehicle side.



2.7 Removing and installing air intake grid

Removing

- Remove the cooling water tank cover ⇒ Body Work; Rep. gr. 64 .
- Screw out screws -arrows- (1.3 Nm) and remove the cover -1-.



- Unscrew the fixing nuts -arrows- (2.5 Nm) and remove the air intake grid upwards.

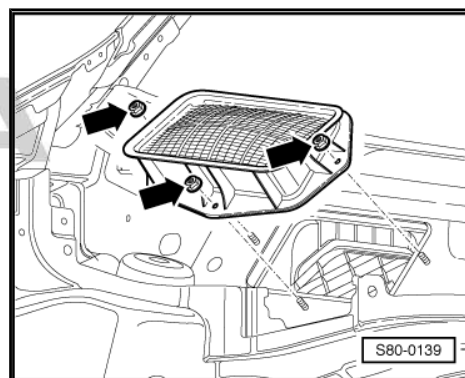
Install

Installation is carried out in the reverse order.



Note

The gasket must be correctly positioned at the air intake grid.



3 Heater control

⇒ „3.1 Removing and installing heater control“, page 9

⇒ „3.2 Plug connections on the rear side of the heater control“, page 9

⇒ „3.3 Removing and installing flex shaft for positioning unit of air distribution flaps“, page 10

⇒ „3.4 Removing and installing the bowden wire for temperature flap“, page 11

3.1 Removing and installing heater control

Removing

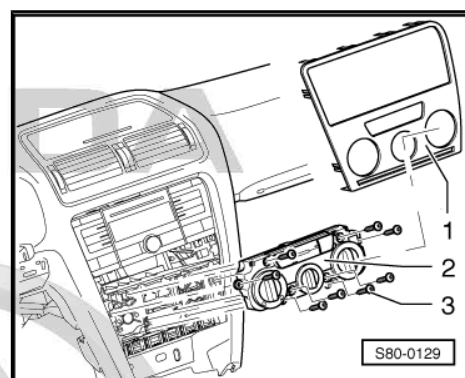


Note

- ◆ *The heater control consists of two separate housings. Before removing the heater control, bring the rotary knobs into the following position:*
- ◆ *Heat regulator to „cold“*
- ◆ *Blower to „0“*
- ◆ *Direction of vent to „footwell“*
- Vehicles with mobile phone holder - slacken mobile phone holder ⇒ Electrical System; Rep. gr. 91 .
- Carefully lever out the covering -1- using the disassembly wedge -3409- .
- Screw out screws -3- (1.5 Nm) and remove the heater control -2- from the dash panel.
- Disconnect plug.

Install

Installation is carried out in the reverse order. Make sure that the rotary knobs have the same position as during the removal.



3.2 Plug connections on the rear side of the heater control

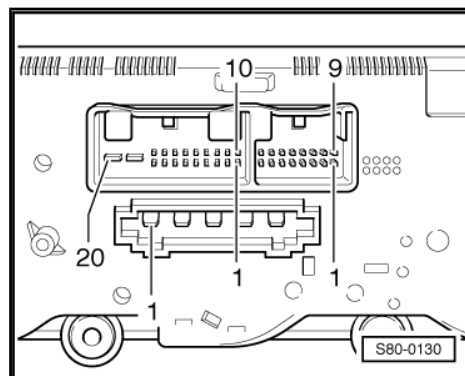
Special tools and workshop equipment required

- ◆ Measuring tool set -V.A.G 1594/C-

16-pin plug connection is not assigned.

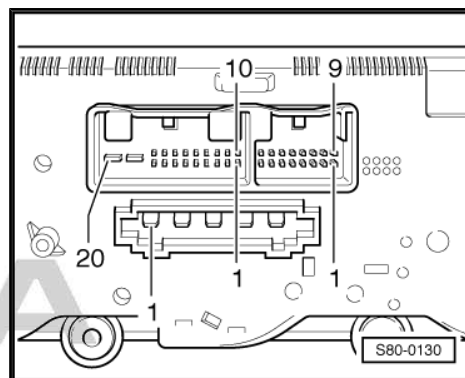
5-pin plug connection, T5

- 1 - 3. Blower stage
- 2 - 2. Blower stage
- 3 - 1. Blower stage
- 4 - 4. Blower stage
- 5 - Terminal X



20-pin plug connection, T20c

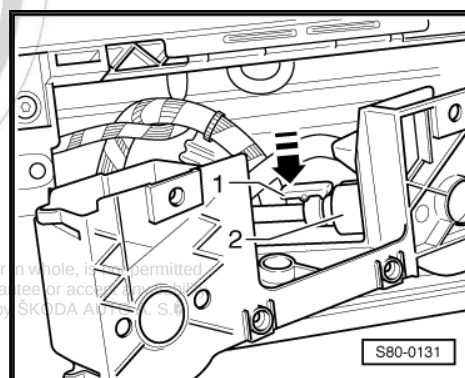
- 3 - Re-circulating air flap control motor -V113-
- 6 - Re-circulating air flap control motor -V113-
- 8 - Rear window heater
- 11 - Control unit for heated driver seat -J131-
- 15 - Control unit for heated front passenger seat -J132-
- 16 - Terminal 75 seat heating (optional)
- 18 - Terminal 30
- 19 - Terminal 15
- 20 - Terminal 31



3.3 Removing and installing flex shaft for positioning unit of air distribution flaps

Removing

- Remove the glove compartment ⇒ Body work; Rep. gr. 70 .
- Remove the heater control ⇒ [page 9](#) .
- Press the catch pegs -1- of the flex shaft in the direction of the arrow- and pull the flex shaft out of the adapter -2- of the heater control.



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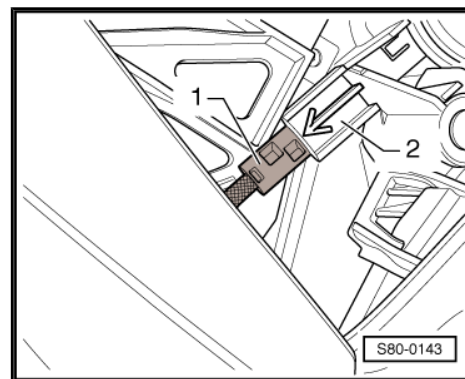
- Pull off flex shaft -1- with sudden motion from the positioning unit of the air distribution flaps -2-.

Install

The flex shaft can only be installed in one way on the positioning unit and on the heater control.

When installing, however, the positioning unit and the rotary knob of the heater control must be in a certain position relatively to each other, otherwise this will result in malfunctions.

- Fit flex shaft onto positioning unit of air distribution flaps and lock in place.
- Use the flex shaft to move the defrost flap into vertical position (open).
- Fit heater control onto adapter and set air distribution knob to „Defrost function“.
- In this position, insert flex shaft into heater control and lock in place.
- Position heater control onto the adapter.



Note

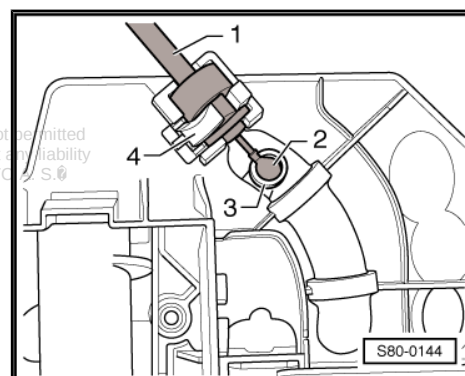
- ◆ In this position, insert flex shaft into control and lock in place. If the dash panel is installed and the position of the defrost flap is not visible, run fresh air blower at maximum speed.
- ◆ If air also flows out of the defrost vent in the „defrost function“ position and not out of the footwell vents, the flex shaft is correctly installed. If this is not the case, remove the flex shaft from the heater control and turn the rotary knob $1/2$ turn (180°). Then reinsert the flex shaft. Repeat check.

3.4 Removing and installing the bowden wire for temperature flap

Removing

- Remove left footwell vent ➔ [page 7](#) .
- Remove the side cover of the centre console on the left side ➔ Body Work; Rep. gr. 68 .
- Fit rotary knob of heater control fully into the position „cold“.
- Remove the heater control ➔ [page 9](#) .
- Remove flex shaft for positioning unit of air distribution flaps from the adapter ➔ [page 10](#) .
- Release the catch -4- of the Bowden wire cover -1- and take the Bowden wire cover out of the adapter.
- Release the ball -2- from the lever -3- of the control.

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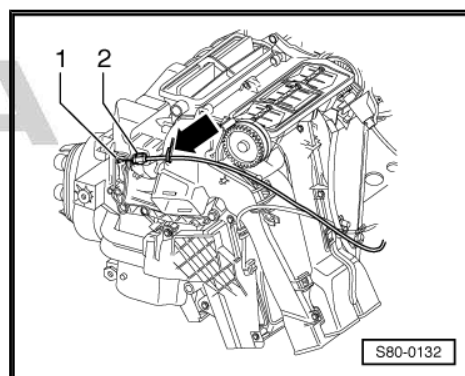
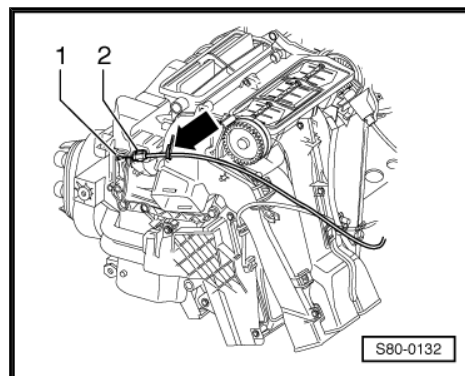


- Unclip Bowden wire at the positioning unit for temperature flap -1- and at the heater unit -2-.

Install

Installation is carried out in the reverse order. Make sure that the Bowden wire is positioned below the hook -arrow-.

- Fit on heater control and check whether it is possible to easily turn the temperature knob from „cold“ to „warm“.



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4 Components on the heater unit

⇒ „4.1 Removing and installing fresh air blower V2“, page 13

⇒ „4.2 Removing and installing series resistor for fresh air blower with overheating fuse N24“, page 13

⇒ „4.3 Removing and installing dust pollen filter“, page 14

⇒ „4.4 Removing and installing the control motor of the re-circulating air flap V113“, page 14

⇒ „4.5 Removing and installing the control unit for temperature flap“, page 15

⇒ „4.6 Removing and installing heat exchanger“, page 15

⇒ „4.7 Removing and installing heating element for additional air heating Z35“, page 19

4.1 Removing and installing fresh air blower -V2-

Removing

The fresh air blower -V2- is accessible from the front passenger side of the footwell.

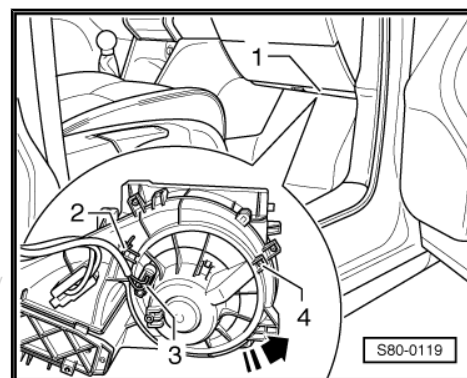
- Remove glove compartment on front passenger side ⇒ Body Work; Rep. gr. 70 .
- Remove shield -1- from heater unit ⇒ [page 1](#) and footwell vent on front passenger side ⇒ [page 7](#) .
- Separate plug connection -3- at the fresh air blower -V2- .
- Unscrew screw -4- for fresh air blower -V2- (if present).
- Release catch -2-, turn fresh air blower -V2- in -direction of arrow- and remove.

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Note

If the catch -2- is defective, screw in screw -4- (1 Nm).



4.2 Removing and installing series resistor for fresh air blower with overheating fuse -N24-

Removing



DANGER!

The series resistor for fresh air blower with overheating fuse -N24- can be hot - risk of burning!

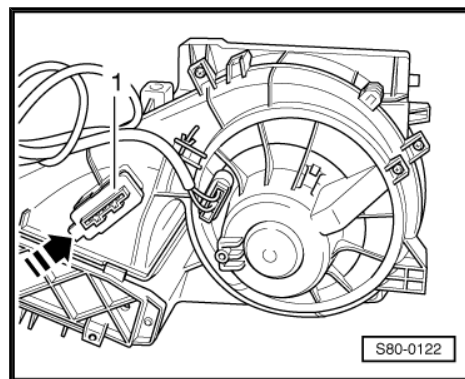
Before removing the series resistor for fresh air blower with overheating fuse -N24- , allow it to cool down.

- Switch off the ignition and all electrical components.
- Remove shield from heater unit ⇒ [page 1](#) .

- Disconnect plug connection at series resistor for fresh air blower with overheating fuse -N24- -1-.
- Press the catch in -the direction of the arrow- and take the series resistor for fresh air blower with overheating fuse -N24- out of the heater unit.

Install

Installation is carried out in the reverse order.



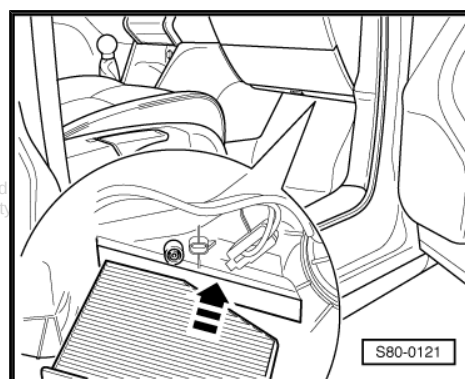
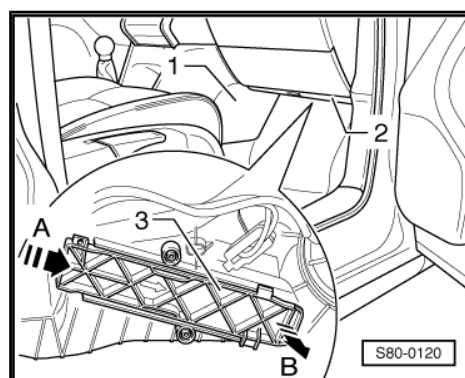
4.3 Removing and installing dust pollen filter

Removing

- Remove shield -2- from heater unit, see ➔ [page 2](#) .
- Release cover -3- in the -direction of the arrow A- and remove in the -direction of the arrow B-.
- Remove dust and pollen filter from the heater unit downwards.

Install

Installation is carried out in the reverse order.



Note

Pay attention to the fitting position of the dust and pollen filter.

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4.4 Removing and installing the control motor of the re-circulating air flap -V113-

Removing

- Switch off the ignition and all electrical components.
- Remove the storage compartment in the dash panel on the front passenger side ➔ Body Work; Rep. gr. 70 .



Note

The position of the re-circulating air flap must not be changed.

- Remove cover -1-.
- Disconnect the plug connection from the control motor of the re-circulating air flap -V113- -2-.
- Remove the control motor of the re-circulating air flap - V113- -2- from the mounts.

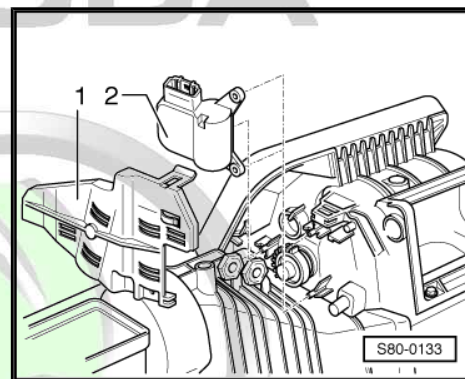
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ After installing the control motor, it is necessary to test the operation of the re-circulating air flap.
- ◆ Carry out the function „Initiate basic setting“ with the Vehicle diagnosis, measurement and information system -VAS 5051-.



4.5 Removing and installing the control unit for temperature flap

Removing

- Switch off the ignition and all electrical components.
- Left-hand drive - remove the side cover of the centre console on the driver's side ⇒ Body Work; Rep. gr. 68 .
- Right-hand drive - remove storage compartment on front passenger side ⇒ Body Work; Rep. gr. 70 .
- Remove left footwell vent ⇒ [page 7](#) .
- Unclip the control cable at the positioning unit for temperature flap -2-.
- Release the catch -1- and press the control unit for temperature flap in -the direction of the arrow- up to the stop.
- Pull off positioning unit for temperature flap.

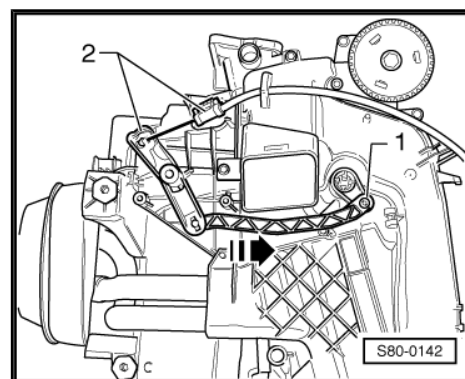
Install

Installation is carried out in the reverse order.



Note

After installing, it is necessary to test the operation of the temperature flap. It must be possible to adjust the rotary knob from the position „cold“ into position „warm“ in a smooth and easy way.



4.6 Removing and installing heat exchanger

Special tools and workshop equipment required

- ◆ Hose clamp -MP 7-602 (3094)-
- ◆ Hose clamp -T30096 (3093)-
- ◆ Pneumatic gun, commercially available

Removing

- On vehicles with air conditioning system, switch on the ignition and set the highest possible temperature.



- Switch off the ignition, all the electrical consumers and disconnect the battery-earth strap ⇒ Electrical System; Rep. gr. 27 .



DANGER!

The coolant temperature can be over 100 °C when the engine is warm. The cooling system is under pressure - risk of scalding!

Before repairs, reduce pressure and temperature if necessary.

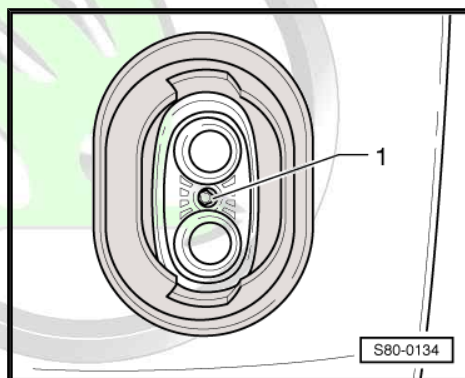
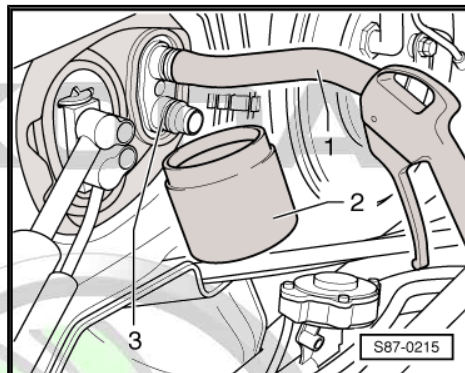
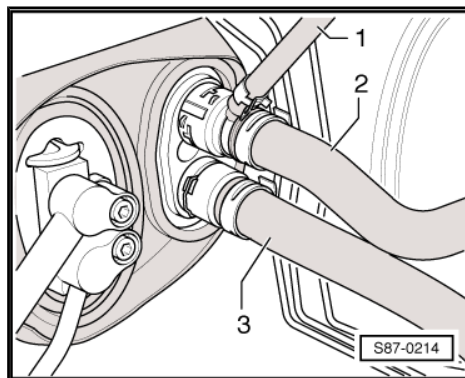
- Pinch off coolant hose -1- with the hose clamp -MP 7-602- .
- Pinch off coolant hoses -2- and -3- with hose clamp -T30096- .



Note

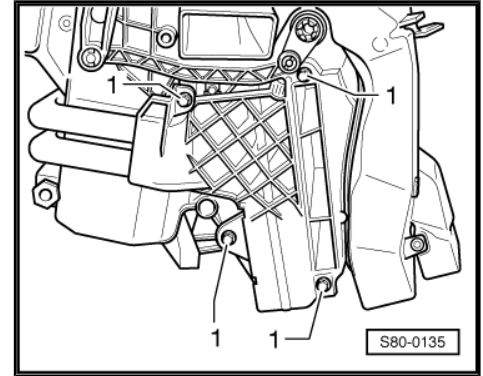
If the heat exchanger is replaced, the coolant must be replaced. In this case, drain the coolant ⇒ Engine; Rep. gr. 19 .

- Separate the quick couplings at the heat exchanger.
- Place the hose -1- a little onto the upper connection.
- Hold a container -2- below the lower connection -3-.
- Carefully blow with a pneumatic gun the remaining coolant out of the heat exchanger into the container -2-.
- Unscrew screw -1- between the heat exchanger connections (hexagon; 6 mm).
- Remove the side cover of the centre console on the left side ⇒ Body Work; Rep. gr. 68 .
- Remove left footwell vent ⇒ [page 7](#) .
- Right-hand drive vehicles with air conditioning system - remove temperature flap control motor -V68- ⇒ [page 97](#) .

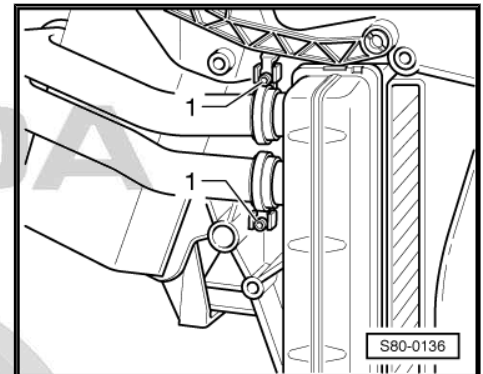


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- Unscrew screws -1- and remove the heat exchanger trim panel.
- Cover the floor covering in the area below the heat exchanger with a liquid impermeable foil and absorbent paper.



- Depending on the type of heat exchanger - open hose clamps -1-

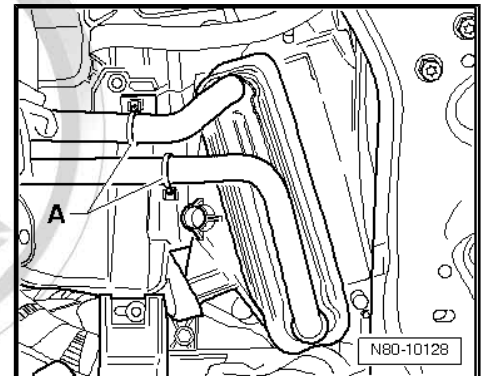


or -A- and pull the coolant pipes out of the heat exchanger.

- Remove the heat exchanger out of the heater unit.

Install

Installation is performed in the reverse order, pay attention to the following points:

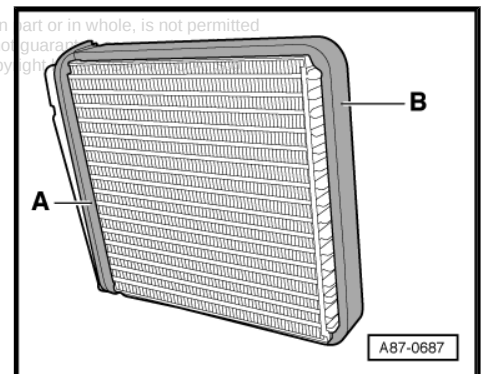


- Install only heat exchanger with undamaged and correctly positioned gasket -A- and -B-.



Note

- ◆ *An incorrectly stuck on gasket can be rolled into the heater unit when sliding in the heat exchanger.*
- ◆ *If the gasket is damaged or incorrectly installed, the cold air can flow around the heat exchanger.*





- On a removed heat exchanger, check the heater unit (through the assembly opening -A-) for contamination.
- If necessary, remove dirt or coolant residues drained from the heat exchanger.
- Carefully slide the heat exchanger into the heater unit.

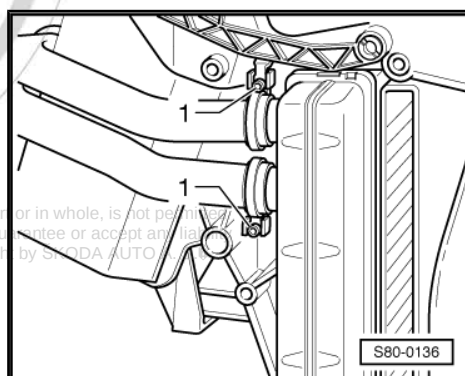
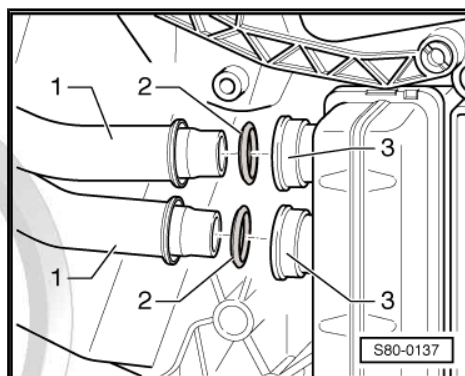
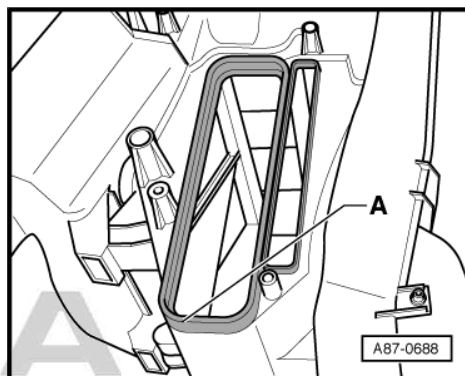


Note

Always replace the gasket rings -2-.

- Moisten new gasket rings -2- with coolant before installing.
- Insert gasket rings in the connections -3- of the heat exchanger.
- Press the coolant pipes -1- into the connections -3-.

- Push the hose clamps -1- over the connection point. They must easily turn on the coolant pipes/flange-heat exchanger.
- Hose clamps -1-



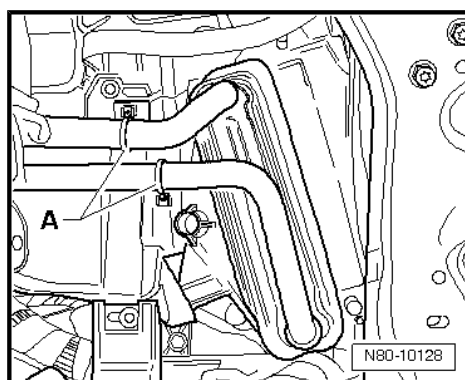
or -A- must be attached as shown in the fig.



Note

In case of deformation of the hose clamps, these must be replaced.

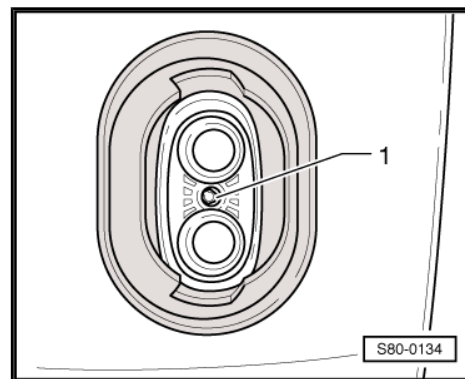
- Tighten hose clamps -1- or -A- to 1.5 Nm.



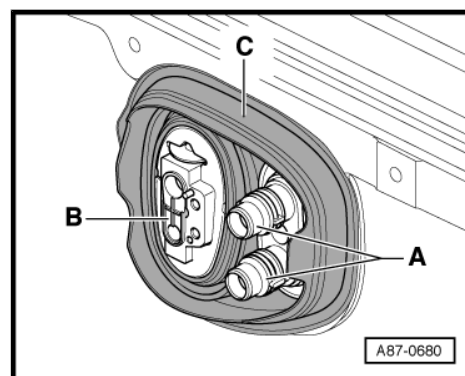
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- Screw in screw -1- between the heat exchanger connections.

Make sure that the screw engages into the provided hole, if necessary press flange into the direction of the centre of the vehicle.



- After installing the grommet -C-, check for correct seating in the bulkhead plenum chamber.
- If necessary, seal the flanges of the coolant pipes to the heat exchanger -A- and the expansion valve to the evaporator -B- with grommet -C- against penetration of ambient humidity with silicone glue sealing mass.
- Pay attention to the sequence when connecting the battery ⇒ Electrical System; Rep. gr. 27 .



Note

Check the coolant circuit for leaktightness, while paying particular attention to the connection between the coolant pipes and the heat exchanger.

4.7 Removing and installing heating element for additional air heating -Z35-



Note

- ◆ *The heating element for additional air heating -Z35- is only fitted to certain models.*
- ◆ *Check with ⇒ Vehicle diagnostic tester.*

Removing



DANGER!

The heating element for additional air heating -Z35- can be hot - risk of burning!

Before removing the heating element for additional air heating -Z35-, allow it to cool down.

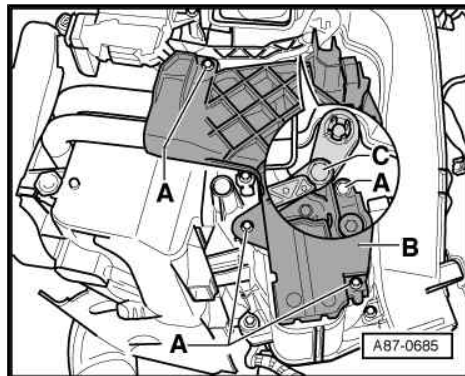
- Remove the side cover of the centre console on the left side ⇒ Body Work; Rep. gr. 68 .
- Remove left footwell vent ⇒ [page 7](#) .



Note

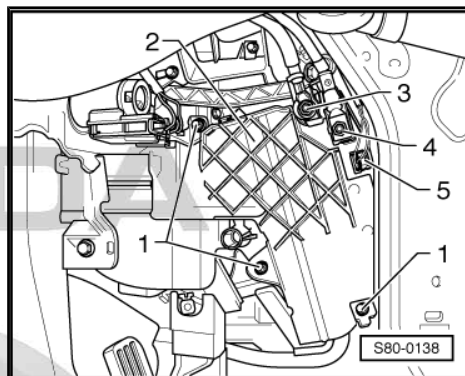
If the lever is positioned opposite the left temperature flap in such a way that the top screw -A- is covered by the lever -C-, switch on the ignition and perform another adjustment of the temperature.

- Disconnect battery earth strap ⇒ Electrical System; Rep. gr. 27 .
- Unscrew the screws -A- from the cover -B- and remove the cover.



Vehicles manufactured up to 10.06

- Unscrew fixing nut for supply voltage -3- (6 Nm) and for earth connection -4- (6 Nm).
- Disconnect the plug connections -5- from the heating element for additional air heating -Z35- .



Vehicles manufactured as of 11.06

- Unscrew the fixing nut for the earth connection -A- (9 Nm).
- Disconnect the plug -B- with the strip -2- from the heating element for additional air heating -Z35- -C-.

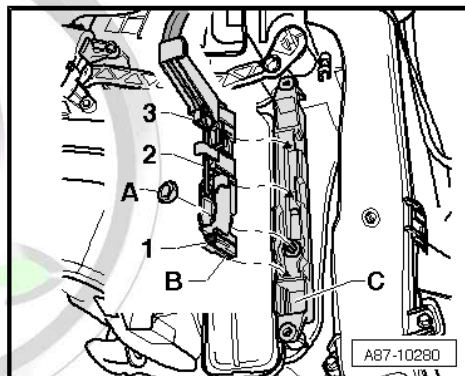
All vehicles

- Push the heating element for additional air heating - Z35- out of the heater unit.

Install

Installation is performed in the reverse order, pay attention to the following points:

- Pay attention to the sequence when connecting the battery ⇒ Electrical System; Rep. gr. 27 .



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5 Removing and installing the heating unit from the vehicle

Special tools and workshop equipment required

- ◆ Hose clamp -MP7-602 (3094)-
- ◆ Hose clamp -T30096 (3093)-
- ◆ Pneumatic gun, commercially available

⇒ „5.1 Removing and installing heater unit“, page 21

5.1 Removing and installing heater unit

A second mechanic is required occasionally for removing and installing the heater unit.

- Disconnect battery earth strap ⇒ Electrical System; Rep. gr. 27 .
- Removing the dash panel ⇒ Body Work; Rep. gr. 70 .
- Separate the rear duct of the right and left footwell ⇒ [page 6](#) .



DANGER!

The coolant temperature can be over 100°C when the engine is warm. The cooling system is under pressure - risk of scalding!

Before repairs, reduce pressure and temperature if necessary.

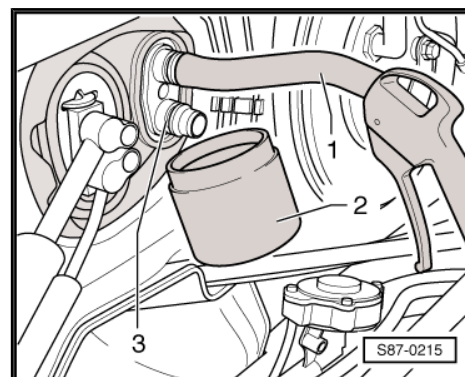
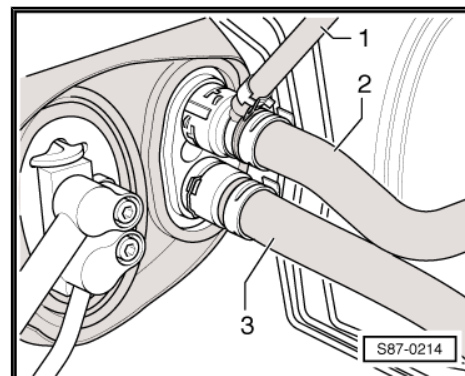
- Pinch off coolant hose -1- with the hose clamp -MP 7-602- .
- Pinch off coolant hoses -2- and -3- with hose clamp -T30096- .



Note

If the heat exchanger is replaced, the coolant must be replaced. In this case, drain the coolant ⇒ Engine; Rep. gr. 19 .

- Separate the quick couplings at the heat exchanger.
- Place the hose -1- a little onto the upper connection.
- Hold a container -2- below the lower connection -3-.
- Carefully blow with a pneumatic gun the remaining coolant out of the heat exchanger into the container -2-.
- Cover the floor covering in the vehicle interior with a liquid impermeable foil and absorbant paper.

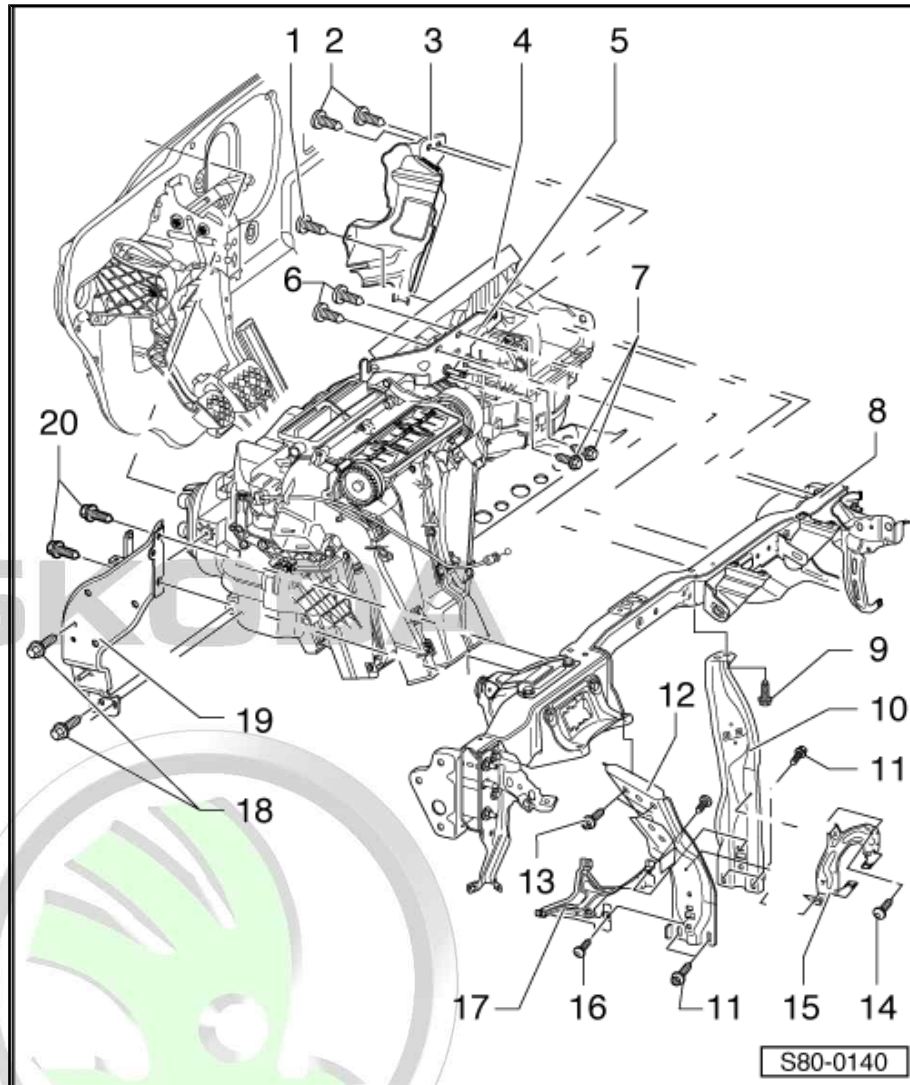




- 1 - Screw, 4,5 Nm
- 2 - Screws, 4,5 Nm
- 3 - Cable strap
- 4 - Heater unit

☐ Removing:

- Remove footwell vent on driver's side.
- Remove the intermediate pieces for defrost duct and dash panel vents.
- Disconnect the plug connections from the heater unit.
- Remove wiring loom from holder - Pos. 5.
- Release screws - Pos. 6 and 7 - from holder - Pos. 5 -.
- Holder - Pos. 5.
- Remove the control unit for data bus diagnostic interface -J533- (attached in the area of the steering column to the bracket - Pos. 19 -) ⇒ Electrical System; Rep. gr. 90 .
- Release screws - Pos. 1 and 2 - from cable clip - Pos. 3 -.



Note

In order to reach the screw - Pos. 1 - the heater unit must be pulled out slightly from the front wall on the driver side.

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- Release screws - Pos. 18 and 20 - and remove from holder - Pos. 19 -.

Vehicles up to CW 44.08:

- Remove holder - Pos. 15 and 17.
- Remove supports - Pos. 10 and 12.

Vehicles as of CW 45.08 (MY 09 Facelift):

- Remove the central pipe/dash panel - Pos. 8 ⇒ Body Work; Rep. gr. 70 .

All vehicles:

- Remove heater unit.

☐ Installing:

Installation is performed in the reverse order, pay attention to the following points:

- Install the seal to the front wall from the passenger compartment and then guide the heat exchanger flange through the seal ⇒ [page 23](#) .
- Top up coolant ⇒ Engine; Rep. gr. 19 .

5 - Bracket, right

6 - Screws, 8 Nm

7 - Screws, 8 Nm

8 - Central pipe/dash panel

9 - Screws, 8 Nm

10 - Right support

- As of CW 45.08 welded to the central pipe Pos. 8

11 - Screws, 20 Nm

12 - Left support

- As of CW 45.08 welded to the central pipe Pos. 8

13 - Screws, 8 Nm

14 - Screws, 8 Nm

15 - Support

- As of CW 45.08 welded to supports Pos. 10 and Pos. 12

16 - Screws, 2 Nm

17 - Support

18 - Screws, 8 Nm

19 - Bracket, left

20 - Screws, 9 Nm

Seal for heater unit/engine compartment



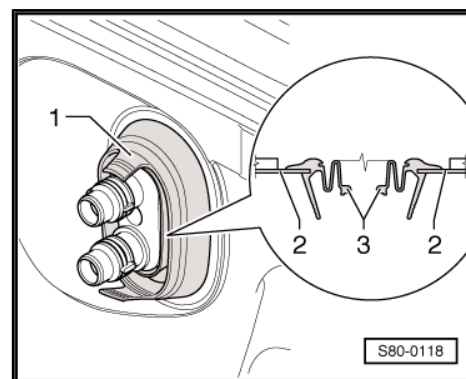
Note

Pay attention to the fitting position of the seal -1-.

1 - Seal - it must be placed all around in the front wall

2 - Front wall

3 - Bead - it must be placed all around in the groove of the heat exchanger flange



82 – Supplementary heating

1 Auxiliary heating

⇒ „1.1 Types of installed auxiliary heatings, general notes“, page 24

⇒ „1.2 Safety measures when working on vehicles fitted with auxiliary heating.“, page 24

⇒ „1.4 Rules of cleanliness when working on the auxiliary heating and the fuel system“, page 25

⇒ „1.5 General notes when working on vehicles fitted with auxiliary heating“, page 26

1.1 Types of installed auxiliary heatings, general notes

Types of auxiliary heatings installed as standard

Petrol engines „Thermo Top V“

Diesel engines up to CW 44.2010 „Thermo Top V“

Diesel engines as of CW 45.2010 „Thermo Top VEVO“

Both heatings are nearly identical, they differ only in the type of fuel delivery to the combustion chamber:

- ◆ Thermo Top V - burner insert with Venturi nozzle, the fuel injection is assisted by the suction effect.
- ◆ Thermo Top VEVO - the fuel is mixed with the air in the evaporator. The same system is used for the auxiliary heating Thermo Top C (available as original accessories).

Further information and description of function:

- ◆ ⇒ Self-study programme No. 79 ; Auxiliary heating
- ◆ ⇒ Owner's manual Octavia II
- ◆ Contact assignment ⇒ **Current flow diagrams, Electrical fault finding and Fitting locations**

As of CW 22.2011, a radio remote control is part of the scope of delivery of the auxiliary heating installed as standard.

- ◆ Description of the function of the radio remote control
⇒ [page 29](#) and Operating Instruction ⇒ Operating Instruction Octavia II .
- ◆ Replacing the battery of the radio remote control
⇒ [page 30](#) .



Note

When replacing, pay attention to the correct part numbers see ⇒ Electronic Catalogue of Original Parts . The fuel pump for Thermo Top V, located on the fuel tank, has a different part number than for Thermo Top VEVO.

1.2 Safety measures when working on vehicles fitted with auxiliary heating.

- ◆ The auxiliary heating must not be on or be switched on in areas where there is a risk of fire or explosion.

- ◆ The auxiliary heating must not be on or be switched on (also not via a preselected switch-on time) in closed rooms without exhaust gas suction.
- ◆ Observe the relevant and applicable safety measures and the rules for cleanliness when working on the fuel system ⇒ Engine; Rep. gr. 20 .
- ◆ The engine must not be started as well as the auxiliary heating must not be switched on if parts of the fuel system (e.g. dosing pump, fuel line, fuel gauge sender) are removed or opened.



WARNING

*The cooling system is under pressure, the coolant temperature can be over 100°C when the engine is warm - risk of burning!
Before repairs, reduce pressure and temperature if necessary.*

Vehicles with start-stop system:

- ◆ On vehicles with activated start-stop system (recognizable by a message in the dash panel insert), the engine can start automatically if required.
- ◆ It is therefore necessary to ensure that the start-stop system is deactivated when carrying out work on the vehicle (ignition switched off; if required switch ignition on again).

Conditions for the activation/deactivation of the start-stop system
⇒ Operating Instruction Octavia II .

1.3 Notes when operating the auxiliary heating on vehicles with diesel engine.

If PME or RME fuel (methyl ester of plants or rapeseed) is refueled during the cold season, it may cause malfunctions of the auxiliary heating.

Reasons:

- If PME or RME fuel (methyl ester of plants or rapeseed) is refueled during the cold season, it may cause malfunctions of the auxiliary heating. The deposits can lead to malfunctions during the combustion process (no more flame formation and deflagration in the combustion chamber) after prolonged operation with PME or RME fuel.

1.4 Rules of cleanliness when working on the auxiliary heating and the fuel system

Carefully observe the following five rules for cleanliness when working on the fuel system:

- ◆ Thoroughly clean the connection points and their surroundings before releasing.
- ◆ Place removed parts on a clean surface and cover. Do not use fuzzy cloths!
- ◆ Carefully cover or seal opened or removed components if the repair is not carried out immediately.
- ◆ Only install clean parts: Remove spare parts from their wrapping immediately before installing. Do not use any parts which have been stored unwrapped (e.g. in tool boxes).
- ◆ On an open fuel system, the following is not allowed:
 - Working with compressed air.



- Start the engine.
- Switch on auxiliary heating.
- Avoid moving the vehicle.

1.5 General notes when working on vehicles fitted with auxiliary heating

- ◆ The auxiliary heating is available in different versions; therefore when replacing pay attention to the exact assignment → Electronic Catalogue of Original Parts .
- ◆ There is a second type plate located in the engine compartment at the lock carrier. In case of uncertainty of the type of auxiliary heating, pay attention to the type plate attached to the auxiliary heating as well as the part number of the auxiliary heating control unit -J364- , which is shown in the function „Self-diagnosis“ → Vehicle diagnostic tester.
- ◆ Switch off the ignition before disconnecting or connecting the battery as this could otherwise damage the control units, see → Electrical System; Rep. gr. 27 Chapter „Work sequence when disconnecting and reconnecting the battery“.
- ◆ The control unit for auxiliary heating -J364- and other components are equipped with a self-diagnosis system; inspect → Vehicle diagnostic tester.
- ◆ Certain inspections may cause the control unit to detect and store a fault. It is therefore necessary to interrogate the fault memory after having completed all inspections and repairs, and if necessary delete → Vehicle diagnostic tester.
- ◆ If there is too little fuel in the fuel tank (fuel gauge is in the red field), the control unit for auxiliary heating -J364- does not switch on the auxiliary heating.
- ◆ A minimum voltage of 11.5 V is required for perfect functioning of the electrical components.
- ◆ The fuel lines (pipes and hoses) from the fuel tank to the auxiliary heating must be routed flush with the underfloor in such a way that they do not come in contact with those parts which become warm and they must be protected against heat. If it heats up, the operation of the auxiliary heating could be impaired.
- ◆ If parts of the fuel system were removed or replaced, make sure that all the components for the fuel removal of the auxiliary heating are properly installed.
- ◆ The function of the auxiliary heating must be inspected after finishing the repair work on the auxiliary heating or the fuel system.
- ◆ If the auxiliary heating is replaced by a new one, it must run at full load mode for at least 10 minutes before handing it over to the customer. There can still be lubricant residues in or on the components of the auxiliary heating fitted at the factory, which evaporate after it is switched on for the first time. The smoke which occurs may worry the customer and he might look upon the auxiliary heating as defective.

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Note

In the event of complaints about the operation of the auxiliary heating on vehicles with diesel engine at the start of the heating period - it is probably caused by frozen fuel in the line from the fuel tank to the auxiliary heating (summer diesel is still present in the fuel system of the auxiliary heating).

Safety measures ⇒ [page 24](#) .

1.5.1 Starting conditions of the auxiliary heating

- ◆ Engine type is O.K. (diesel/petrol)
- ◆ Auxiliary heating coded in Gateway
- ◆ No undervoltage shut-off
- ◆ No Crash shut-off
- ◆ No fuel reserve operation
- ◆ No fault code entries which prevent the start-up



Note

The  button does not influence the auxiliary heating operation.



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2 Description of the function and control of auxiliary heating as well as the radio remote control

Other information and further description of function:

- ◆ ⇒ Self-study programme No. 79 ; Auxiliary heating
- ◆ ⇒ Owner's manual Octavia II
- ◆ Contact assignment ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

⇒ „2.1 Description of the function and control of auxiliary heating“, page 28

⇒ „2.2 Operation (activation) of the auxiliary heating“, page 29

⇒ „2.3 Descriptions of the functions of the radio control Telestart T91“, page 29

⇒ „2.4 Replacing the battery of the radio remote control“, page 30

2.1 Description of the function and control of auxiliary heating

Switching on

Starting the auxiliary heating is carried out optionally via the remote control, the instant heat button -E537- (if present, installed as of CW 22.11), a corresponding programming in the dash panel insert or direct switch-on in the cover of the air conditioning actuator. The auxiliary heating is switched on automatically via the vehicle electronics, if all the necessary requirements are present ⇒ [page 27](#) . Detailed description for programming as well as switching on/off the auxiliary heating ⇒ Operating Instruction Octavia II .

First of all the functional testing of the fresh air blower -V2- and the combined glow plug with flame monitoring -Q8- is carried out, then the glow plug with flame monitoring -Q8- passes through the preheating phase.

The subsequent start procedure depends, among other things, on the coolant temperature and can therefore vary over time. In addition, the fuel is supplied, the glow plug with flame monitoring -Q8- is gradually switched off and the flame detector is activated.

After completing the initial phase, the device is burning at full load and the additional load control (operating mode, full load, partial load and control pause) is based on the following thresholds of the coolant temperature.

- ◆ Change from full load to partial load: approx. 82 °C
- ◆ Change from partial load to control pause: approx. 88 °C

If the coolant temperature drops during the control pause and within 15 minutes to below 71 °C, the heater unit starts in the full load mode.

The reference resistance of the glow plug with flame monitoring -Q8- is automatically redefined depending on the device in order to compensate the age-related changes during the start-up phase or during the afterrun at regular intervals.

As a result of this calibration process, the affected processes can also take a long time.



Switching off

After the maximum possible duration of 60 min has elapsed or after manual shutdown by remote control or instant heat button - E537- , the auxiliary heating is switched off.

The auxiliary heating switches off when at least one of the defined switching requirements is no longer fulfilled ⇒ [page 27](#) .

After switching off, the operation of the dosing pump -V54- is immediately stopped.

The combustion air blower -V6- and the glow plug with flame monitoring -Q8- continue to operate within a limited period of time, in order to completely burn the remaining fuel in the system and to cool the burner components.

The afterrun of the circulating pump -V55- is also carried out.

The afterrun of the heater unit can last different lengths of time depending on the software version and the load level at the time of shutdown.

175 seconds when switching off from full load mode

110 seconds when switching off from partial load mode

Depending on the software versions in the control unit, this can lead to deviations of the above after-running times.

2.2 Operation (activation) of the auxiliary heating

Starting the auxiliary heating is carried out optionally via the remote control, the instant heat button -E537- (if present), a corresponding programming in the dash panel insert or direct switch-on in the cover of the air conditioning actuator. The auxiliary heating is switched on automatically via the vehicle electronics, if all the necessary requirements are present ⇒ [page 27](#) .

Detailed description for switching on and operating the auxiliary heating ⇒ Operating Instruction Octavia II .

2.3 Descriptions of the functions of the radio control Telestart T91

As of CW 22.2011, a radio remote control is part of the scope of delivery of the auxiliary heating installed as standard.

The Webasto heater units Thermo Top V/VEVO or the vehicle blower can be switched on and off wireless over a great distance with the radio control Telestart T91. A modus change must be performed at the sender in order to switch on the vehicle blower (ventilating the vehicle interior).

After switching on, the auxiliary heating switches off automatically after the expiration of the selected engaging duration or by means of the automatic heating.

An optimal signal transfer is obtained in a cleared area or from elevated locations. As a result, the operation of the auxiliary heating becomes possible if the distance from the vehicle is up to 600 m. Due to poor weather conditions, in heavily developed areas or as a result of a weak battery, the reception is restricted accordingly.



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Note

- ◆ Detailed description of the function of the radio remote control
⇒ *Operating Instruction Octavia II*.
- ◆ If the radio remote control is replaced, carry out the adaptation
with ⇒ *Vehicle diagnostic tester*.

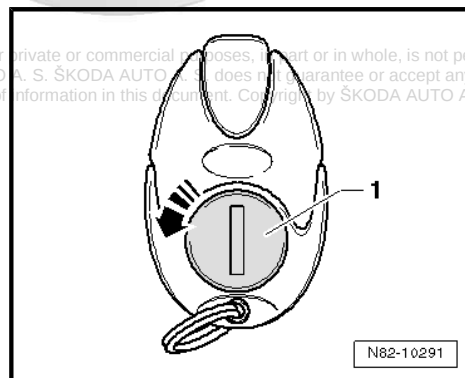
2.4 Replacing the battery of the radio remote control



Note

- ◆ Observe the fitting position of the battery (see symbol „+“ on the cover -1-).
 - ◆ Only use a battery of the same type with a voltage of 3V.
 - ◆ The adaptation is ensured, a new adaptation is not necessary.
- Place a coin in the gap of the cover -1- and unlock the cover by turning -arrow- and remove it.
 - Replace battery, insert cover and lock it by turning to the right.

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3 Repairing the auxiliary heating

- ⇒ „3.1 Summary of components of auxiliary heating“, page 31
- ⇒ „3.2 Type plate of auxiliary heating“, page 32
- ⇒ „3.3 removing and installing ambient temperature sensor G17“, page 34
- ⇒ „3.4 Removing and installing auxiliary heating“, page 34
- ⇒ „3.5 Removing and installing lengthened exhaust pipe (only on vehicles with diesel engine up to CW 45.05)“, page 36
- ⇒ „3.6 Removing and installing silencer with bracket“, page 37
- ⇒ „3.7 Removing and installing holder for auxiliary heating“, page 37
- ⇒ „3.8 Removing and installing cover for auxiliary heating“, page 37
- ⇒ „3.9 removing and installing coolant shut-off valve of heating system N279“, page 38
- ⇒ „3.10 Removing and installing radio receiver for auxiliary heating R64“, page 38

3.1 Summary of components of auxiliary heating

1 - Radio receiver for auxiliary water heating -R64-

- ☐ mounted as of CW 22.10
- ☐ removing and installing
⇒ [page 38](#)

2 - Fuel gauge sender -G-

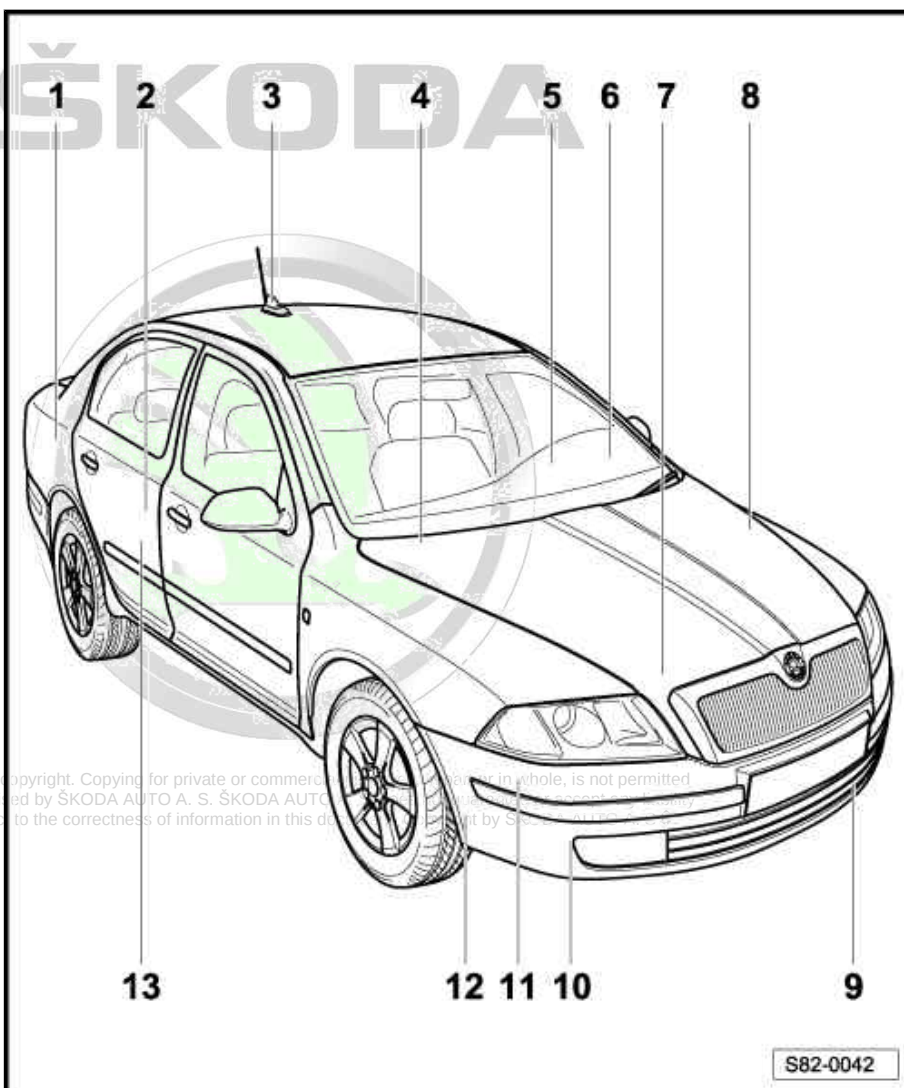
- ☐ Removing and Installing
⇒ Engine; Rep. gr. 20
- ☐ Fitting location: under the rear seat bench on the fuel delivery unit

3 - Roof aerial for signal reception from the radio remote control of the auxiliary heating

- ☐ removing and installing
⇒ Electrical System;
Rep. gr. 91

4 - During operation of the auxiliary heater -N279-

- ☐ the heater coolant shut-off valve is controlled by the auxiliary heater controller -J364-
- ☐ Fitting location: at the bulkhead in the engine compartment
- ☐ Functional testing with
⇒ Vehicle diagnostic tester
- ☐ removing and installing
⇒ [page 38](#)
- ☐ not fitted on all engines
see ⇒ [page 38](#)





5 - Fresh air blower relay -J13-

- ☐ only vehicles without Climatronic
- ☐ check ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Fitting location: additional relay holder under the dash panel

6 - Fuse carrier

7 - Coolant temperature sender -G62-

- ☐ before removing, reduce pressure in cooling system if necessary

8 - Battery

9 - Ambient temperature sensor -G17-

- ☐ removing and installing ⇒ [page 34](#)
- ☐ check ⇒ Vehicle diagnostic tester
- ☐ Fitting location: below the front left bumper

10 - Circulating pump -V55-

- ☐ removing and installing ⇒ [page 41](#)

11 - Auxiliary heating with auxiliary heating control unit -J364-

- ☐ removing and installing ⇒ [page 34](#)
- ☐ Fitting location: below the front right bumper
- ☐ the type plate is located at the auxiliary heating as well as at the lock carrier ⇒ [page 32](#)

12 - Exhaust system of auxiliary heating

- ☐ removing and installing ⇒ [page 42](#)

13 - Dosing pump -V54-

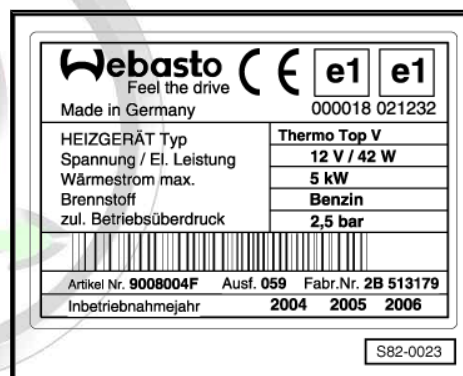
- ☐ removing and installing ⇒ [page 53](#)
- ☐ Check fuel flow rate ⇒ [page 54](#)

3.2 Type plate of auxiliary heating

The type plate is attached to the auxiliary heating and its duplicate to the lock carrier.

Type plate at the auxiliary heating

Version for petrol engines



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Version for diesel engines up to CW 44.2010

Webasto (€) e1 e1	
Feel the drive	
Made in Germany 000018 021232	
HEIZGERÄT Typ	Thermo Top V
Spannung / El. Leistung	12 V / 42 W
Wärmestrom max.	5 kW
Brennstoff	Diesel/PME
zul. Betriebsüberdruck	2,5 bar
Artikel Nr. 9008003F Ausf. 058 Fabr.Nr. 2B 513178	
Inbetriebnahmejahr 2004 2005 2006	
S82-0024	

Version for diesel engines as of CW 45.2010

Type plate at lock carrier

Webasto (€) e1		00 0277 03 5895
Feel the drive		
Made in Germany	(E1)	122R - 00 0277 10 R - 03 5895
HEIZGERÄT Typ	Thermo Top VEVO	
Spannung / Nennleistung	12 V / 5,0 kW	
Brennstoff	Diesel	
zul. Betriebsüberdruck	2,5 bar	
Artikel Nr. 9022150A Fabr. Nr. 1 1014177521		
Inbetriebnahmejahr 2010 2011 2012		
N82-10493		

Version for petrol engines

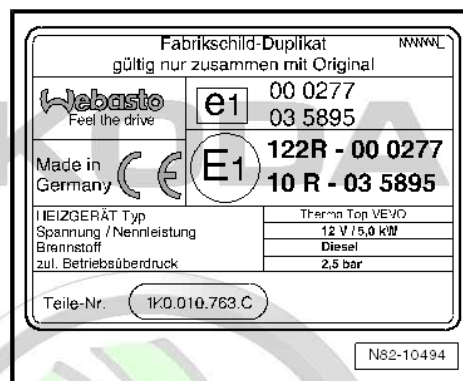
Fabrikschild-Duplikat Gültig nur zusammen mit Original	
Webasto (€) e1 e1	
Feel the drive	
MADE IN GERMANY 00 0018 02 1232	
HEIZGERÄT Typ	TT-V
Spannung / El. Leistung	12 V / 42 W
Wärmestrom max.	5,0 KW
Brennstoff	Benzin
zul. Betriebsüberdruck	2,5 bar
Teile-Nr. 1K0 010 375 P	
S82-0026	

Version for diesel engines up to CW 44.2010

Fabrikschild-Duplikat Gültig nur zusammen mit Original	
Webasto (€) e1 e1	
Feel the drive	
MADE IN GERMANY 00 0018 02 1232	
HEIZGERÄT Typ	TT-V
Spannung / El. Leistung	12 V / 42 W
Wärmestrom max.	5,0 KW
Brennstoff	Diesel/PME
zul. Betriebsüberdruck	2,5 bar
Teile-Nr. 1K0 010 375 R	
S82-0025	

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Version for diesel engines as of CW 45.2010



3.3 removing and installing ambient temperature sensor -G17-

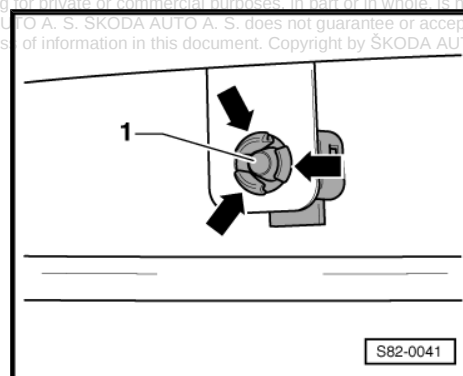
The outside temperature sensor -G17- is located behind the bottom grid of the front left bumper.

Removing

- Except vehicles RS and Scout - depending on the fitting location of the sensor, remove the air guide grid from the front left bumper ⇒ Body Work; Rep. gr. 63 , if necessary put a finger through the grid of the bumper.
- Vehicles RS and Scout - remove bumper ⇒ Body Work; Rep. gr. 63 .
- Unclip ambient temperature sensor -G17- -1- from the bracket -arrows- and disconnect the plug connection.

Install

Installation is carried out in the reverse order.



3.4 Removing and installing auxiliary heating

Removing



Note

If the auxiliary heating is replaced, first connect the diagnostic unit ⇒ Vehicle diagnostic tester and the function „replace control unit“ is called up under the guided functions.

Special tools and workshop equipment required

- ◆ Hose clamps -MP7-602 (3094)-
- Disconnect the battery-earth cable with the ignition off ⇒ Electrical System; Rep. gr. 27 .
- Remove front bumper ⇒ Body Work; Rep. gr. 63 .
- Remove the front right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .

- Removing windshield washer reservoir ➔ Electrical System;
Rep. gr. 92 .
- Separate the exhaust system (only diesel engines).

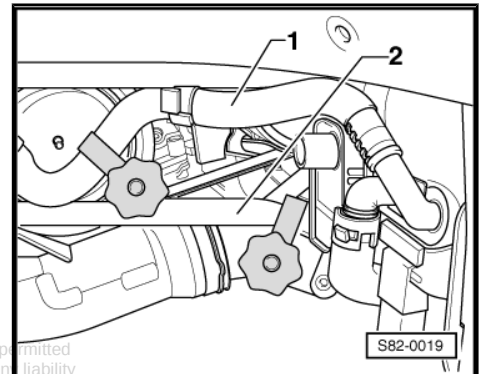


WARNING

The cooling system is under pressure, the coolant temperature can be over 100°C when the engine is warm - risk of burning!

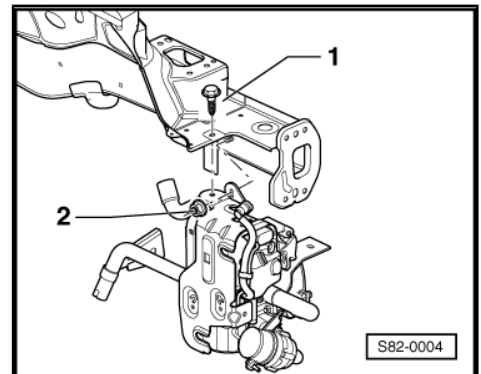
Before repairs, reduce pressure and temperature if necessary.

- Pinch off coolant hoses -1- and -2- with hose clamps -MP7-602 (3094)- .
- Pull out coolant hoses -1- and -2- from the auxiliary heating.
- Extracting fuel line ➔ [page 40](#) .
- Disconnect plug connections of auxiliary heating.



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- Remove fixing screw -1- (8 Nm).
- Remove fixing nut -2- (8 Nm).





- Slacken clamp -3- at coolant hose from the front frame side rail and remove fixing nut -1- (15 Nm).
- Remove auxiliary heating -2-.

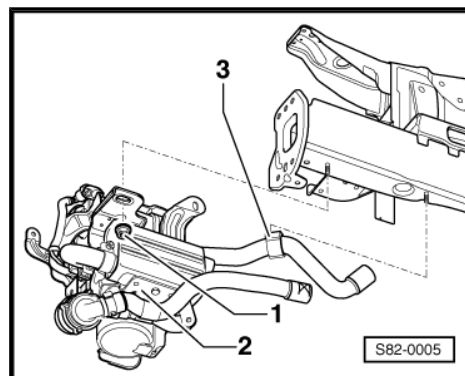
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ♦ Pay attention to correct connection of hoses according to connection plan ⇒ Engine; Rep. gr. 19.
- ♦ If the auxiliary heating is not replaced, connect the diagnostic unit ⇒ Vehicle diagnostic tester after installing and the function „unlock heater unit“ is called up under the guided functions.
- ♦ After installing the auxiliary heating, top up the refrigerant circuit and ventilate ⇒ Engine; Rep. gr. 19.
- ♦ Pay attention to the sequence when connecting the battery earth strap ⇒ Electrical System; Rep. gr. 27.
- ♦ If the auxiliary heating is replaced by a new one, it must run at full load mode for at least 10 minutes before handing it over to the customer. There can still be lubricant residues in or on the components of the auxiliary heating fitted at the factory, which evaporate after it is switched on for the first time. The smoke which occurs may worry the customer and he might look upon the auxiliary heating as defective.



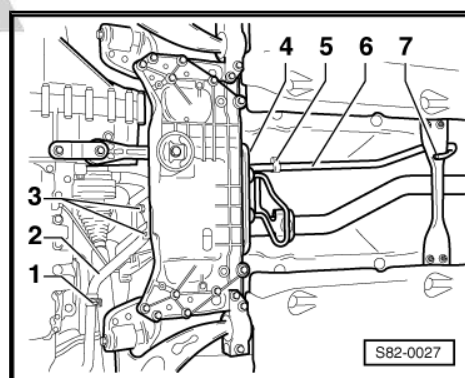
3.5 Removing and installing lengthened exhaust pipe (only on vehicles with diesel engine up to CW 45.05)

Removing

- Release screw -7- (6 Nm), slacken clamp -5- (7 Nm) and remove exhaust tailpipe -6-.
- Release screws -3- (6 Nm) and -4- (23 Nm), slacken clamp -1- (7 Nm) and remove middle exhaust pipe -2-.

Install

Installation is carried out in the reverse order.



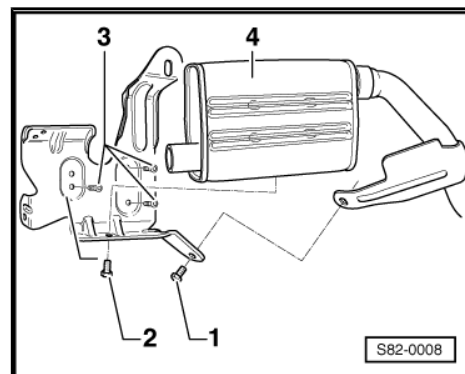
3.6 Removing and installing silencer with bracket

Removing

- Slacken exhaust pipe from silencer -4-.
- Remove screw -1- (7 Nm) and lay the exhaust pipe aside.
- Remove screw -2- (7 Nm) and remove silencer -4-.
- Remove screws -3- from silencer bracket (6 Nm).
- Slacken bracket from the centering tabs and remove.

Install

Installation is carried out in the reverse order.



3.7 Removing and installing holder for auxiliary heating

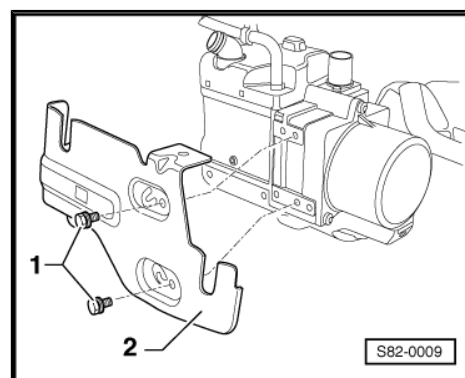
- The auxiliary heating is removed.

Removing

- Remove screws -1- and remove holder -2-.

Install

Installation is carried out in the reverse order.



3.8 Removing and installing cover for auxiliary heating

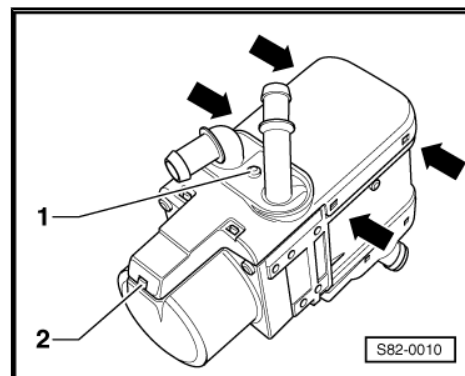
- The auxiliary heating is removed.

Removing

- Mark the fitting location of the supports for the coolant hoses, remove screw -1- (4 Nm) and take out the supports.
- Unclip cover at the catches -arrows- and pull over the catch pegs -2-.

Install

Installation is carried out in the reverse order.



3.9 removing and installing coolant shut-off valve of heating system -N279-



Note

The coolant shut-off valve of the heating system -N279- is not fitted on all engines (see connection diagram for coolant hoses ➔ Engine; Rep. gr. 19).

Removing

Special tools and workshop equipment required

- ◆ Hose clamps -MP7-602 (3094)-



WARNING

The cooling system is under pressure, the coolant temperature can be over 100°C when the engine is warm - risk of burning!
Before repairs, reduce pressure and temperature if necessary.

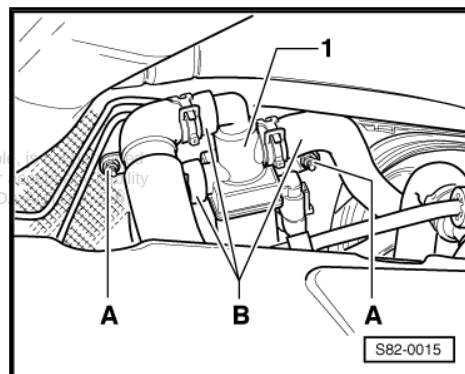
- Remove engine cover and intake pipe to exhaust turbocharger ➔ Engine; Rep. gr. 21 .
- Pinch off coolant hoses -B- with hose clamps -MP7-602 (3094)- and pull off the hoses from the coolant shut-off valve of heating system -N279- -1-.
- Disconnect plug connection at coolant shut-off valve of heating system -N279-.
- Release fixing nuts -A- (10 Nm) and remove coolant shut-off valve of heating system -N279- -1-.

Install

Installation is carried out in the reverse order.

Diagnosis of coolant shut-off valve of heating system -N279-

For fault finding use the ➔ Vehicle diagnostic tester in the function „Targeted fault finding“.



3.10 Removing and installing radio receiver for auxiliary heating -R64-

The radio receiver for auxiliary heating -R64- is located behind the right luggage compartment trim panel.

- Remove right luggage compartment trim panel ➔ Body Work; Rep. gr. 70 .
- Disconnect plug of antenna socket and plug from radio receiver for auxiliary heating -R64- .
- Release the fixing screws and remove the radio receiver with holder.
- Press the latch clip and push the radio receiver out of the holder.
- Installation is performed in the reverse order, pay attention to the following points:



Note

When replacing the radio receiver, adapt the new radio receiver with the ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“ to the auxiliary heating.

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4 Components of auxiliary heating

⇒ „4.1 Summary of components of auxiliary heating“, page 40

⇒ „4.2 Removing and installing air intake silencer“, page 40

⇒ „4.3 Removing and installing circulating pump V55“, page 41

⇒ „4.4 Removing and installing exhaust system“, page 42

4.1 Summary of components of auxiliary heating

1 - Auxiliary heating with auxiliary heating control unit -J364-

- ☐ removing and installing
⇒ page 34

2 - Fuel line with quick coupling

3 - Air intake silencer

- ☐ removing and installing
⇒ page 40

4 - Exhaust System

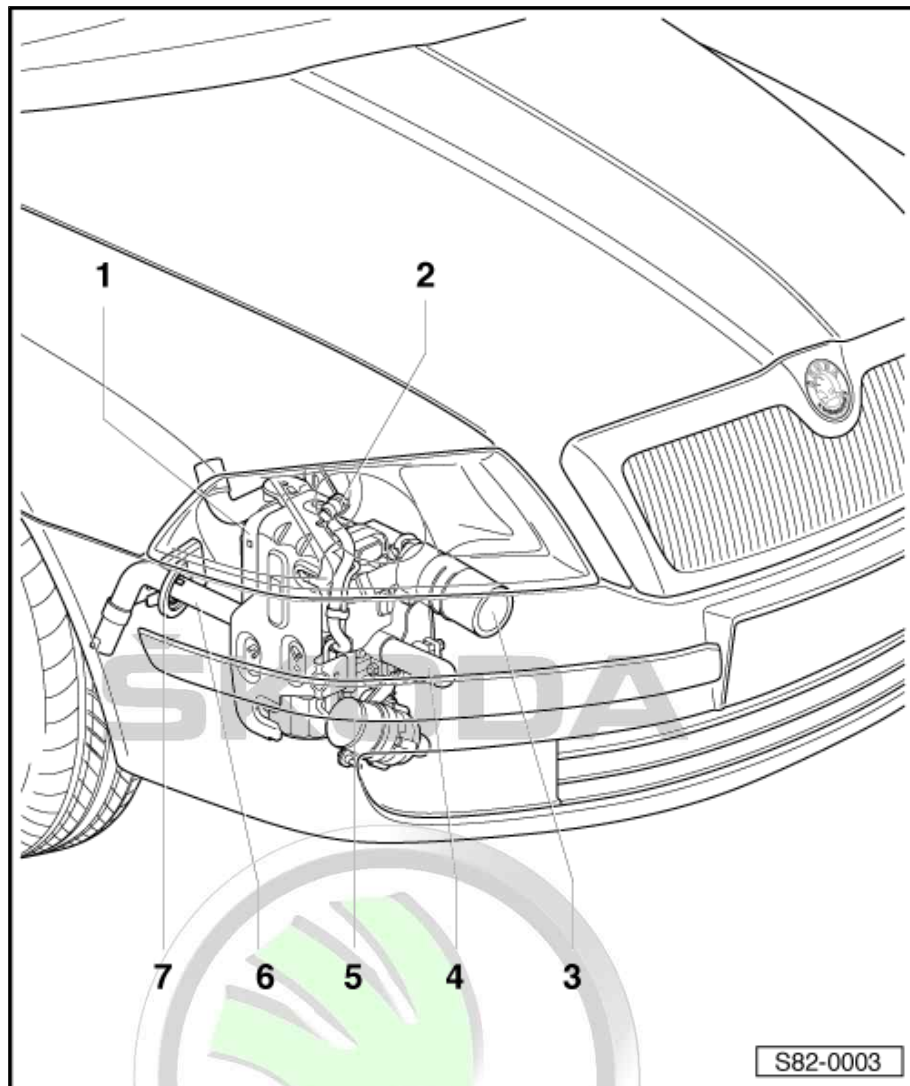
- ☐ removing and installing
⇒ page 42

5 - Circulating pump -V55-

- ☐ removing and installing
⇒ page 41

6 - Exhaust tail pipe

7 - Protective part



4.2 Removing and installing air intake silencer

Removing

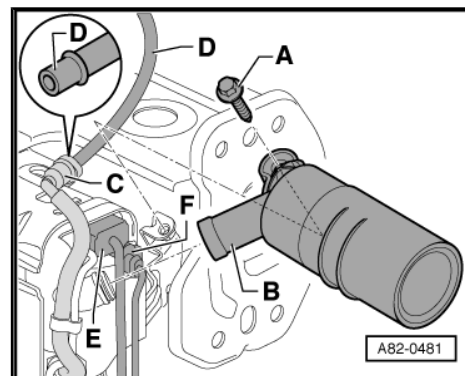
- Remove front bumper ⇒ Body Work; Rep. gr. 63 .

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- Screw out the screw -A- and detach the air intake silencer -B- from the intake manifold.

Install

Installation is carried out in the reverse order.



4.3 Removing and installing circulating pump -V55-

Removing

Special tools and workshop equipment required

- ◆ Hose clamps -MP7-602 (3094)-

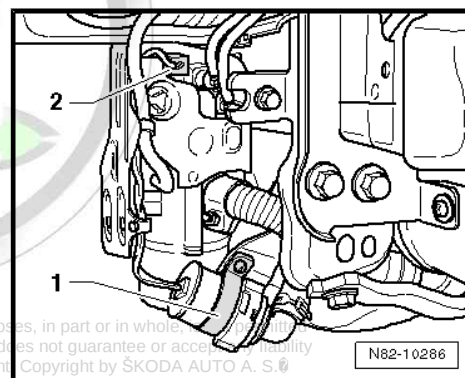


WARNING

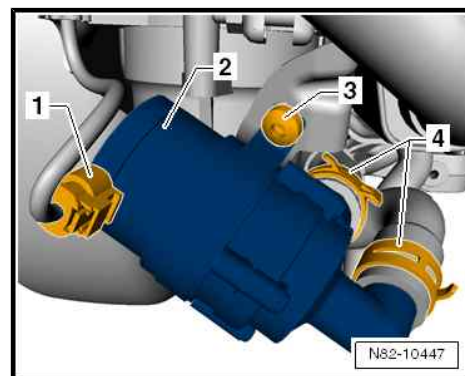
The cooling system is under pressure, the coolant temperature can be over 100°C when the engine is warm - risk of burning!

Before repairs, reduce pressure and temperature if necessary.

- Remove noise insulation ⇒ Body Work; Rep. gr. 50 and front part of right wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- On vehicles where the plug is not directly located at the circulating pump housing (up to CW 01.10) - Remove bumper ⇒ Body Work; Rep. gr. 63 .
- Vehicles up to CW 01.10 - Disconnect the plug -2- from the control unit and expose the cable to the pump -1-.



- Vehicles as of CW 02.10 - Disconnect the plug -1- from the pump -2-.



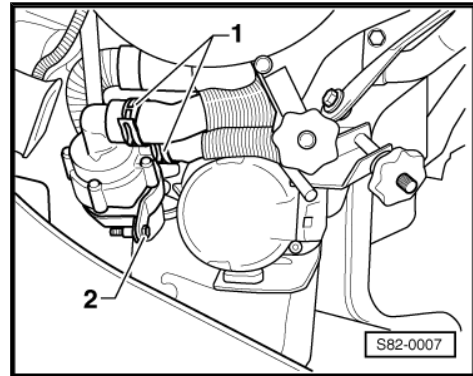


- Disconnect the coolant hoses from the hose clamps -MP 7-602 (3094)- .
- Slacken clamps -1- and pull off the coolant hoses from the circulating pump -V55- .
- Release screw -2- and remove circulating pump -V55- .

Install

Installation is performed in the reverse order, pay attention to the following points:

- After installing the circulating pump, top up the refrigerant circuit and ventilate ⇒ Engine; Rep. gr. 19 .



4.4 Removing and installing exhaust system

Removing

Special tools and workshop equipment required

- ♦ Torque wrench
- Slacken fixing clamp -1- (7 Nm), remove screws -2- and -3- (7 Nm).
- Remove exhaust system.

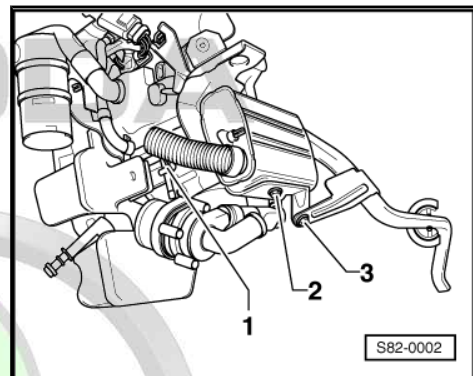
Install

Installation is performed in the reverse order, pay attention to the following points:



WARNING

The exhaust system must be aligned in such a way that it does not come in contact with the wiring loom.



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5 Disassembling and assembling auxiliary heating

⇒ „5.1 Components of the inner auxiliary heating, Thermo Top V“, page 43

⇒ „5.2 Components of the inner auxiliary heating, Thermo Top VEVO“, page 45

⇒ „5.3 Removing and installing auxiliary heating control unit J364“, page 46

⇒ „5.4 Plug assignment at control unit for auxiliary heating J364 Thermo Top V/VEVO“, page 47

⇒ „5.5 Removing and installing, checking the temperature sensor G18 and the overheating sensor G189“, page 48

⇒ „5.6 Removing and installing glow plug with flame monitoring Q8 on Thermo Top V“, page 49

⇒ „5.7 Removing and installing glow plug with flame monitoring Q8 on Thermo Top VEVO“, page 49

5.1 Components of the inner auxiliary heating, Thermo Top V

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For disassembling the auxiliary heating, remove it from the vehicle ⇒ „3.4 Removing and installing auxiliary heating“, page 34 .


1 - Cover for auxiliary heating control unit -J364-

- ☐ removing - separate the fuel supply and unlatch the cover from the latch clips

2 - Temperature sensor -G18-

- ☐ remove and install, test
⇒ [page 48](#)

3 - Overheating sensor -G189-

- ☐ remove and install, test
⇒ [page 48](#)

4 - Fuel shut-off valve -N109-

- ☐ only on vehicles with diesel engine as of CW 45.05
- ☐ Component of the combustion pipe, cannot be replaced individually
- ☐ Inspect proper operation ⇒ [page 55](#)

5 - Combustion pipe
6 - Heat exchanger
7 - 7 Nm
8 - Retaining spring
9 - 4 Nm
10 - Gasket

- ☐ replace after each removal
- ☐ Check fitting position

11 - Cover

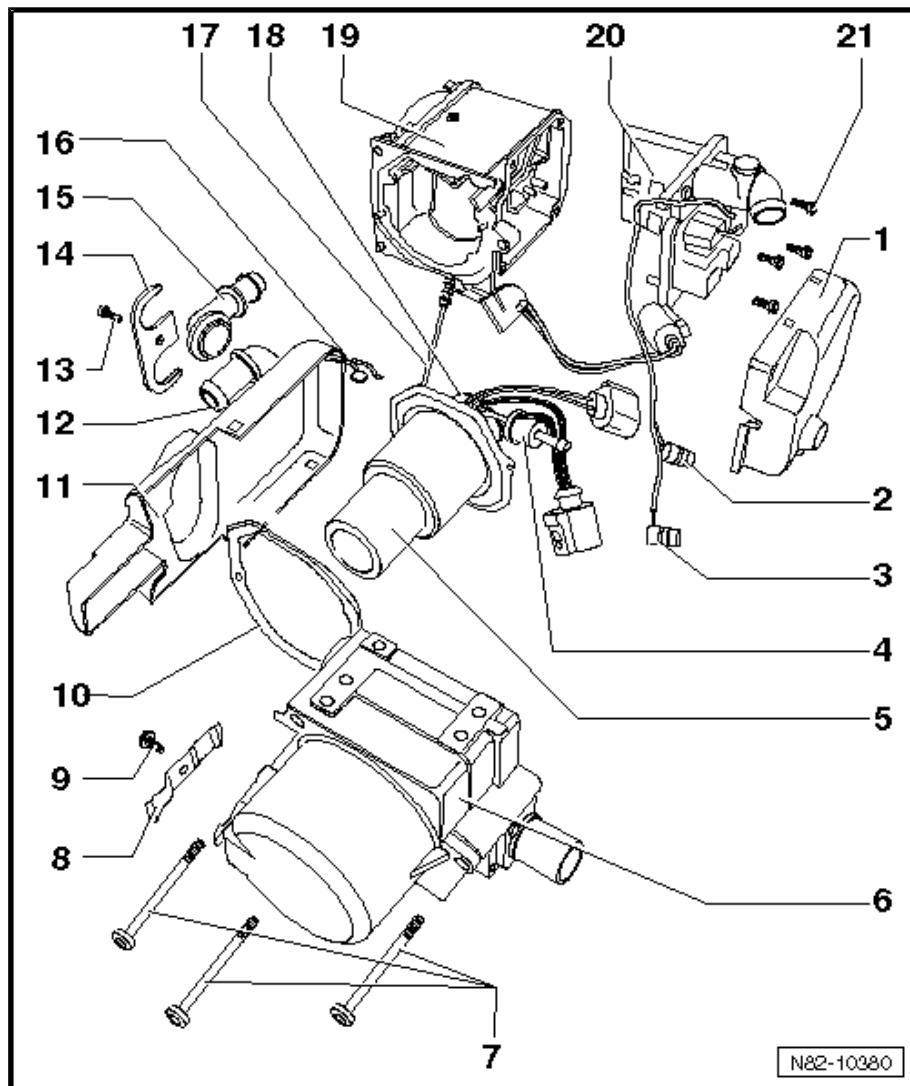
- ☐ removing and installing ⇒ [page 37](#)

12 - Coolant hose supports
13 - 4 Nm
14 - Retaining plate
15 - Coolant hose supports
16 - Retaining clip
17 - Glow plug with flame monitoring -Q8-

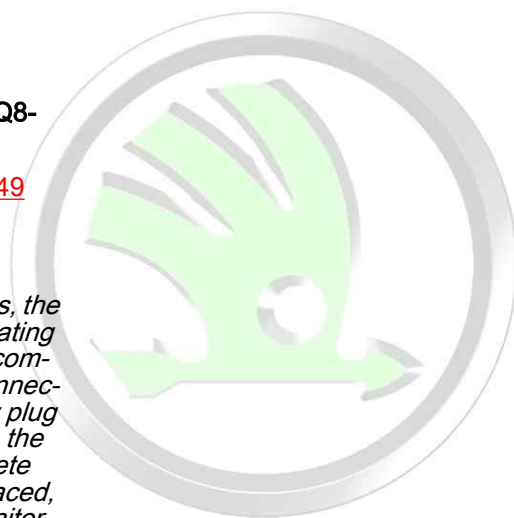
- ☐ pay attention to correct position
- ☐ remove and install, test ⇒ [page 49](#)


Note

For vehicles with diesel engines, the heating element for fuel preheating -Z66- is installed firmly at the combustion pipe. The cables are connected with the cables of the glow plug with flame monitoring -Q8-. In the case of this version the complete combustion pipe must be replaced, if the glow plug with flame monitoring -Q8- is defective.



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18 - Heating element for fuel preheating -Z66- (only diesel engines)

- ☐ Inspect proper operation ⇒ Vehicle diagnostic tester

19 - Housing

- ☐ the combustion air blower -V6- and the housing cannot be disassembled

20 - Auxiliary heating control unit -J364-

- ☐ removing and installing ⇒ [page 46](#)

21 - 4 Nm

5.2 Components of the inner auxiliary heating, Thermo Top VEVO

For disassembling the auxiliary heating, remove it from the vehicle ⇒ [page 34](#)

1 - Cover for auxiliary heating control unit -J364-

2 - Temperature sensor -G18-

- ☐ remove and install, test
⇒ [page 48](#)

3 - Overheating sensor -G189-

- ☐ remove and install, test
⇒ [page 48](#)

4 - Retaining bracket for retaining spring of glow plug with flame monitoring -Q8-

- ☐ pay attention to correct position

5 - Glow plug with flame monitoring -Q8-

- ☐ pay attention to correct position
- ☐ removing and installing
⇒ [page 49](#)

6 - Retaining spring for glow plug with flame monitoring -Q8-

- ☐ pay attention to correct position

7 - Combustion pipe

8 - Heat exchanger

9 - 7 Nm

10 - Retaining spring

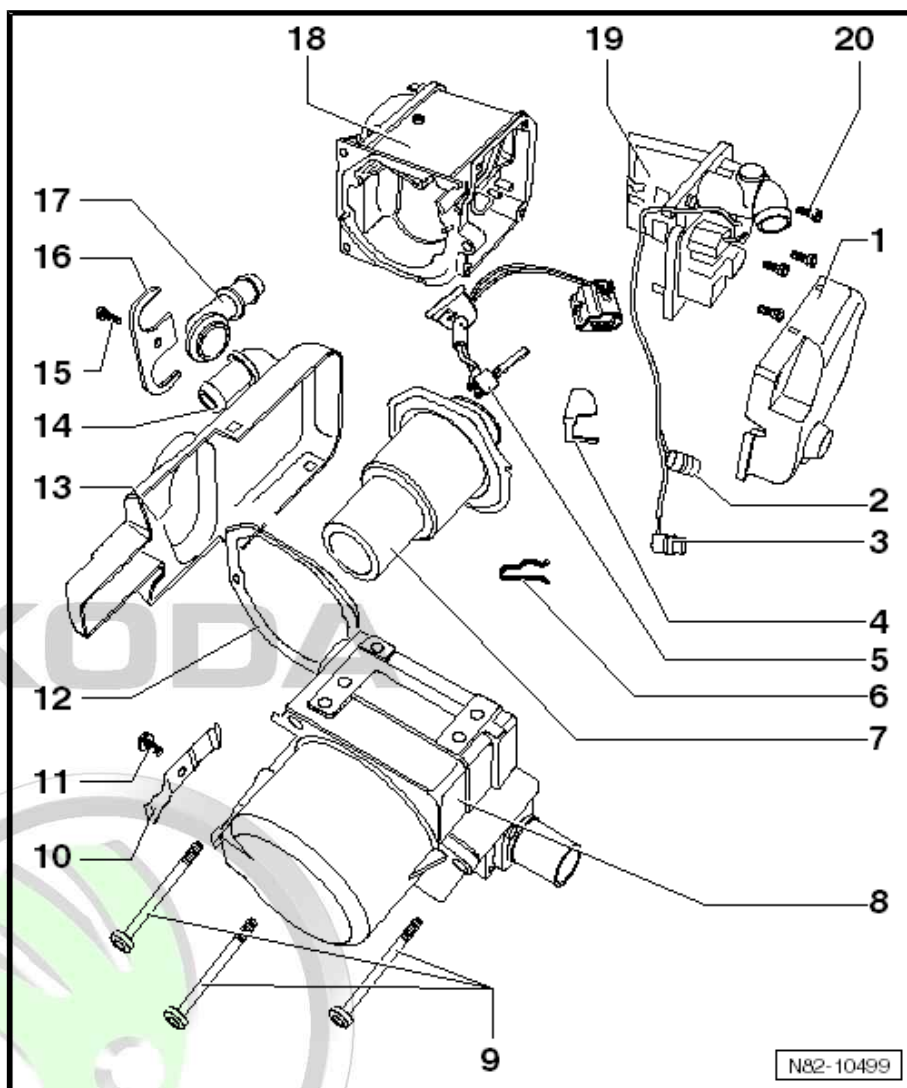
11 - 4 Nm

12 - Gasket

- ☐ replace after each removal
- ☐ Check fitting position

13 - Cover

- ☐ removing and installing ⇒ [page 37](#)





14 - Coolant hose supports

15 - 4 Nm

16 - Retaining plate

17 - Coolant hose supports

18 - Housing

- ☐ combustion air blower -V6- and housing cannot be disassembled

19 - Auxiliary heating control unit -J364-

- ☐ removing and installing ⇒ [page 46](#)

20 - 4 Nm

5.3 Removing and installing auxiliary heating control unit -J364-

Removing

- Remove cover for control unit ⇒ [Item 1 \(page 44\)](#) .
- Unplug connector -A- and -C- and release screws -arrows-.
- Remove cover.

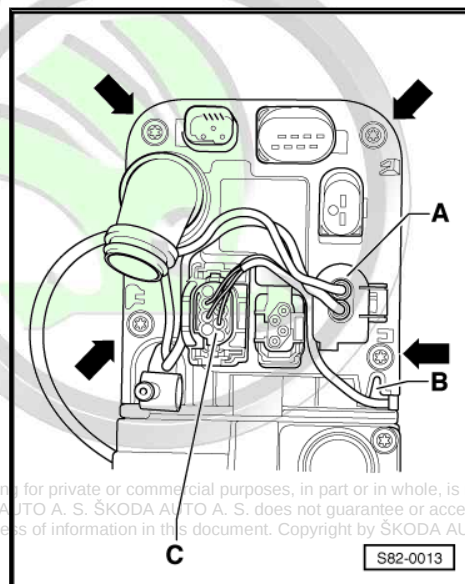
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

When assembling the wiring loom of the connector -C- must be in the recess -B-.



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Con- nec- tor	Pin No.	Connection designation
3	1	Glow plug with flame monitoring -Q8- +
	2	Glow plug with flame monitoring -Q8- -
4	1	Fuel shut-off valve -N109- (as of CW 45.05 Thermo Top V, diesel engines)
	2	Fuel shut-off valve -N109- (as of CW 45.05 Thermo Top V, diesel engines)
	3	Heating element for fuel preheating -Z66- (Thermo Top V, only diesel engines)
	4	Heating element for fuel preheating -Z66- (Thermo Top V, only diesel engines)
5	2	Temperature sensor -G18- +
	3	Overheating sensor -G189- +
	6	Temperature sensor -G18- -
	7	Overheating sensor -G189- -
6	2	Circulating pump -V55- -
	3	Circulating pump -V55- +

5.5 Removing and installing, checking the temperature sensor -G18- and the over-heating sensor -G189-



Note

Proper functioning can be checked using the ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“.

Removing

- Release screw -1- and remove retaining spring -2-.
- Pull out temperature sensor -G18- -3- and overheating sensor -G189- -4- using a set of pointed pliers.

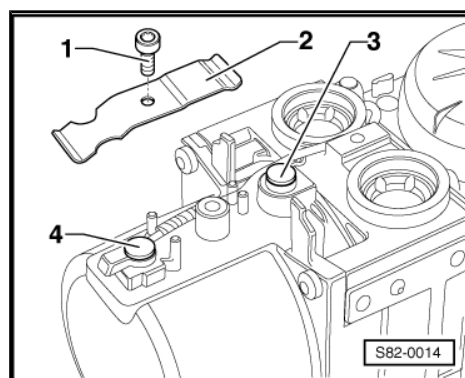
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ♦ Pay attention to the correct location of the retaining spring -2-.
- ♦ The sensors cannot be replaced individually.



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5.6 Removing and installing glow plug with flame monitoring -Q8- on Thermo Top V

Note

- ◆ The diesel version is shown on the figure.
- ◆ For the diesel version, the heating element for fuel preheating -Z66- (Pos. -A-) is installed firmly at the combustion chamber. The cables are connected with the cables of the glow plug with flame monitoring -Q8-. In the case of this version the complete combustion pipe must be replaced, if the glow plug with flame monitoring -Q8- is defective.

Removing

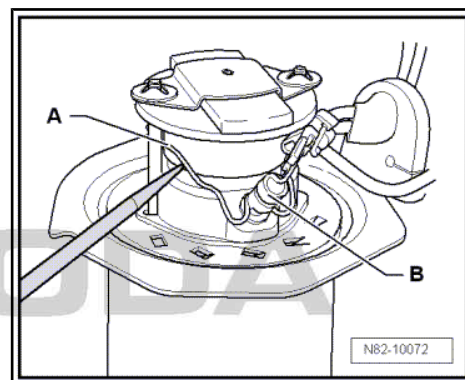
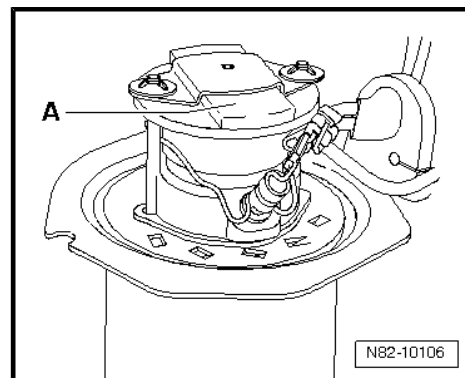
- Remove housing with combustion air blower -V6- ➔ [page 43](#).
- Raise the clip -A- on both sides using a suitable screwdriver and remove the glow plug -B- with flame monitoring -Q8-.

Install

Installation is performed in the reverse order, pay attention to the following points:

Note

- ◆ The glow plug -B- must be fixed in the exact position with the clip -A- in the ceramic housing. A faulty position can cause problems during the combustion (e.g. build-up of smoke).
- ◆ The non-insulated connecting lines to the glow plug must not touch or rest against any other components (risk of short circuit).
- ◆ Proper functioning of the glow plug with flame monitoring -Q8- can be checked using the ➔ Vehicle diagnostic tester in the function „Targeted fault finding“.



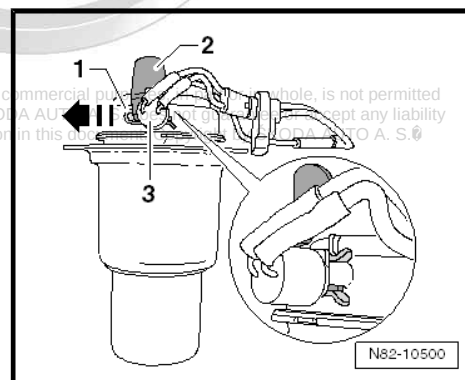
5.7 Removing and installing glow plug with flame monitoring -Q8- on Thermo Top VEVO

Removing

- Remove housing with combustion air blower -V6- ➔ [page 45](#).
- Pull out retaining spring -1- -arrow-.
- Remove retaining bracket -2-.
- Remove glow plug with flame monitoring -Q8- Pos. -3- -3-.

Install

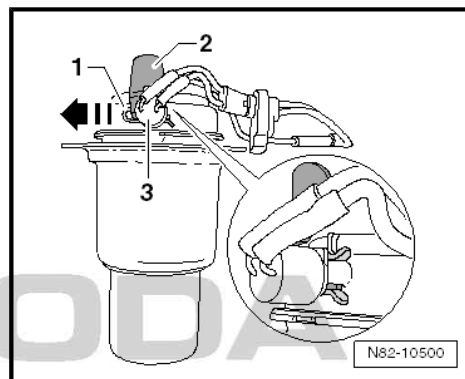
Installation is performed in the reverse order, pay attention to the following points:





Note

- ◆ *Observe the fitting position of the retaining spring -1- as well as the retaining bracket -2-.*
- ◆ *The non-insulated connecting lines to the glow plug must not touch or rest against any other components (risk of short circuit).*
- ◆ *Proper functioning of the glow plug with flame monitoring -Q8- can be checked using the ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“.*



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6 Fuel supply of auxiliary heating



Note

- ◆ *Observe safety measures ⇒ [page 24](#) .*
- ◆ *Observe rules for cleanliness ⇒ [page 25](#) .*
- ◆ *Fuel lines must be secured only with spring strap clips. The use of clamp-type or screw-type clips is not allowed.*
- ◆ *Use pliers for spring strap clips to remove and fit the spring strap clips.*
- ◆ *If parts of the fuel system were removed or replaced, make sure that all the components for the fuel removal of the auxiliary heating are properly installed.*
- ◆ *The fuel line (pipes and hoses) from the fuel tank to the auxiliary heating must be routed in such a way that it does not come in contact with those parts which become warm and it must be protected against heat. If it heats up, the operation of the auxiliary heating could be impaired.*

⇒ [„6.1 Summary of components of fuel supply“; page 51](#)

⇒ [„6.2 Removing and installing the dosing pump V54 with its component parts“, page 53](#)

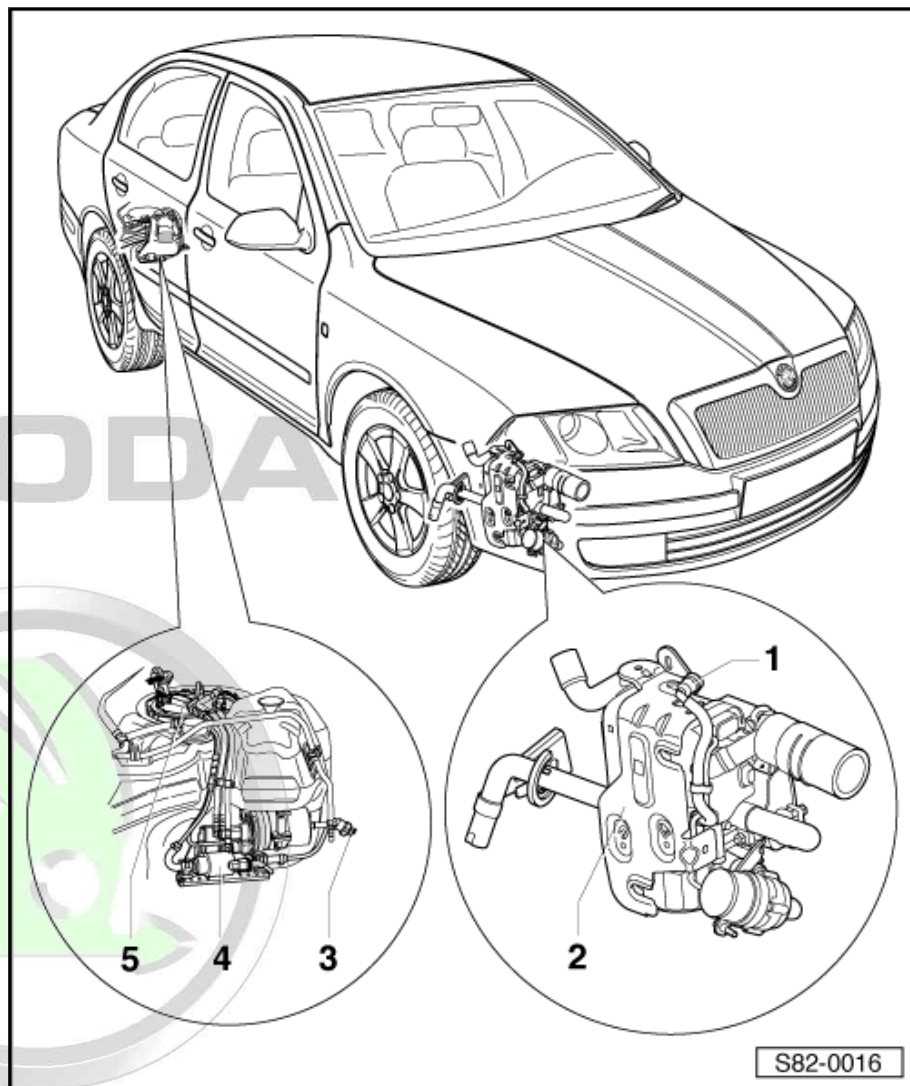
⇒ [„6.3 Check fuel flow rate“, page 54](#)

⇒ [„6.4 Checking the function of the fuel shut-off valve N109“, page 55](#)

6.1 Summary of components of fuel supply



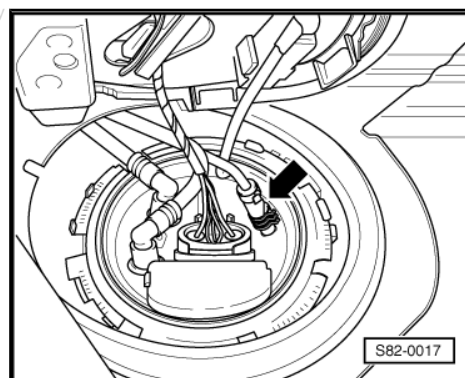
- 1 - Quick coupling
- 2 - Auxiliary heating
- 3 - Quick coupling
- 4 - Dosing pump -V54-
 - ❑ removing and installing
⇒ [page 53](#)
- 5 - Fuel delivery unit
 - ❑ Removing and Installing
⇒ Engine; Rep. gr. 20
 - ❑ Connection of the fuel line to the fuel delivery unit
⇒ [page 52](#)



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Connection of the fuel line to the fuel delivery unit

The fuel removal of the auxiliary heating is performed via the connection to the fuel delivery unit -arrow-.



6.2 Removing and installing the dosing pump -V54- with its component parts



WARNING

The fuel line is under pressure! Place cleaning cloths around the connection point before detaching hose connections. Then reduce the pressure by carefully removing the hose.

- 1 - Gasket at fuel reservoir
- 2 - Plug connection of dosing pump -V54-
- 3 - Clips
- 4 - Quick coupling
- 5 - Bracket for dosing pump -V54-
- 6 - Dosing pump -V54-

- ☐ Dosing pump and related components are a replacement part
- ☐ different versions, see ➔ Electronic Catalogue of Original Parts
- ☐ Removing:



Note

In order to remove the dosing pump -V54-, it is necessary to slightly lower the fuel reservoir ➔ Engine, Rep. gr. 20.

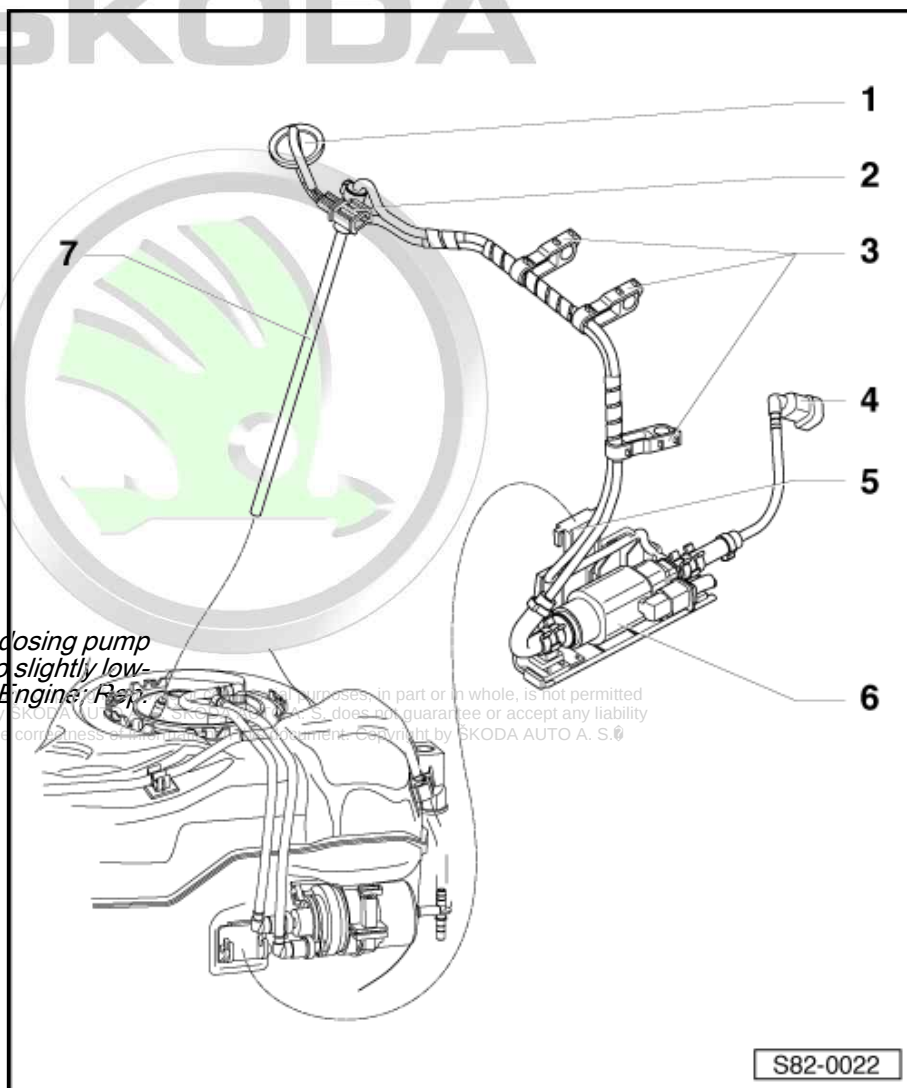
- Disconnect plug connection - Pos. 2 - of the dosing pump -V54-.
- Slacken fuel hose at the quick coupling - Pos. 4 -.
- Remove the cables from the cable straps - Pos. 3.
- Unhook bracket for dosing pump -V54- - Pos. 5 - at fuel reservoir.
- Slacken the bottom hose clamp at the connection on the fuel delivery unit and pull out the fuel extraction pipe - Pos. 7.
- ☐ Installing:

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ *Transport caps must be removed before installing.*



- ◆ The fuel flow through the pump is marked by an arrow (fuel outlet from the pump on the side of the plug).
- ◆ The fuel extraction pipe must not be bent when inserting into the fuel tank, so that it is not turned outside the banking up housing of the fuel delivery unit, see ➔ [page 54](#) .
- ◆ At present, the dosing pump - V54- has a grey plastic cover for auxiliary heatings with the fuel shut-off valve -N109- and a black plastic cover for auxiliary heatings without the fuel shut-off valve -N109- .

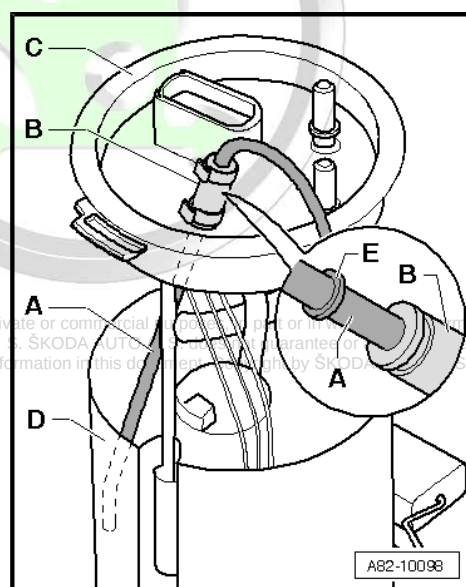
7 - Fuel extraction pipe

The correct position of the fuel extraction pipe



Note

If the auxiliary heating operates without problems with a full fuel tank and in the event problems occur when operating with a partly filled fuel tank (fault message „No flame formation“ or „Repeated flame-out“), this indicates a fault in the routing of the fuel extraction pipe (the pipe -A- is located outside the banking up housing -D-).



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6.3 Check fuel flow rate

Special tools and workshop equipment required

- ◆ ➔ Vehicle diagnostic tester
- ◆ Commercial measuring glass

Test requirements

- Voltage at the dosing pump -V54- : approx. battery voltage
➔ Current flow diagrams, Electrical fault finding and Fitting locations.
- Resistance of dosing pump -V54- : approx. 5.2 Ω ➔ Current flow diagrams, Electrical fault finding and Fitting locations.
- No fault in fault memory ➔ Vehicle diagnostic tester.
- Ambient temperature below 25°C.
- Coolant temperature below 30°C.
- Fuel lines are not damaged or leaking.

- Fuel reservoir is filled adequately (fuel gauge in the dash panel insert is not at the red level).

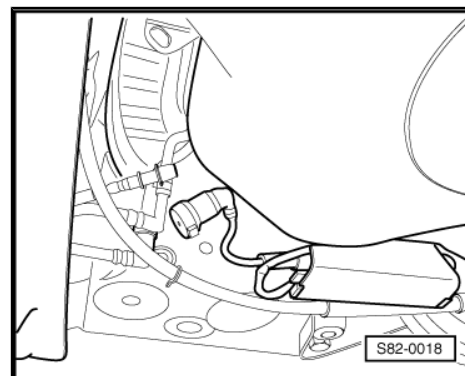
Test sequence



WARNING

The fuel line is under pressure! Place cleaning cloths around the connection point before detaching hose connections. Then reduce the pressure by carefully removing the hose.

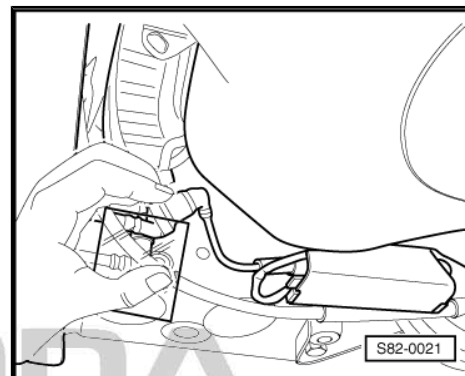
- Disconnect fuel line at the dosing pump -V54- and close with suitable means.



- Call up the guided function „check fuel flow rate“ with the vehicle diagnosis, measurement and information system, open the fuel line and at the same time hold the measuring glass.

After approx. 30 seconds the fuel line is filled and ventilated.

- Close fuel line.
- Empty measuring glass.
- Call up the guided function „check fuel flow rate“ with the vehicle diagnosis, measurement and information system, open the fuel line and at the same time hold the measuring glass.



After approx. 120 seconds the fuel delivery is finished.

- Reconnect the fuel line.

Nominal flow rate: 22 to 28 ml.

- If the nominal rate is not achieved, replace dosing pump -V54- ➔ [Item 6 \(page 53\)](#) .

6.4 Checking the function of the fuel shut-off valve -N109-

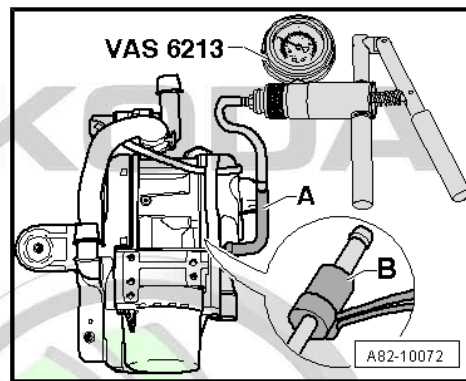


Note

Fuel shut-off valve -N109- Pos. -B- only on Thermo Top V as of CW 45.2005 on vehicles with diesel engines.



- Remove the fuel line from the auxiliary heating ➔ [page 40](#) .
Close the removed fuel line or place the end of the removed fuel line in a small vessel if necessary (a small quantity of fuel can escape during the following actuator diagnosis. This can also be avoided by disconnecting the plug from the dosing pump located at the fuel tank.
- For example, connect the hand vacuum pump -VAS 6213- at the fuel line to the auxiliary heating -A-.
- Connect the ➔ Vehicle diagnostic tester and select the function „actuator diagnosis of the auxiliary heating“ in the targeted fault finding, do not start yet.
- Using the hand vacuum pump -VAS 6213- , generate an overpressure of approx. 1.5 bar.
- Wait approx. 1 minute, the overpressure indicated on the pressure gauge of the pump must remain.
- Activate the actuator fuel shut-off valve -N109- in the function „Actuator diagnosis“, while doing so observe the display on the pressure gauge of the hand vacuum pump.
- As soon as the fuel shut-off valve -N109- is actuated, the pointer on the pressure gauge of the hand vacuum pump must drop.



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87 – Air conditioning system

1 Instructions and safety measures for repair work on vehicles with air conditioning and when using refrigerant R 134a

Safety measures must be observed for refrigerant R 134a (additional directives may apply in individual countries):

Refrigerant must not be released into the environment, it must be drained off from the refrigerant circuit using an exhaust system or A/C service station. The drained off refrigerant is processed on site or is returned to the manufacturer for ecological disposal (different or additional directives may apply in certain countries).

If unpleasant odours come from the heating and air conditioning unit, it must be cleaned with e.g. the ultrasonic air conditioning system cleaning device -VAS 6189B-. When cleaning, proceed according to the enclosed instruction. Other information, see ➤ [page 58](#) .

If during repairs on the vehicle it is necessary to drain the refrigerant circuit, the vehicle must be entrusted to a service centre!

Reasons:

Only the service centres have suitable A/C service stations and properly trained personnel where the refrigerant can be drained off professionally.

In order to carry out professional work on air conditioning systems for vehicles, you must have completed a training course on the air conditioning system including general knowledge (possibly with a corresponding final test) and you must be able to implement these elements in practice, see ➤ Air conditioning system with refrigerant R134a; Rep. gr. 00 General notes on the air conditioning system.

Only these workers are recognised as qualified to pursue the activities on air conditioning systems for vehicles.

Alternative or additional regulations may be valid in certain countries.

Note

All the safety measures when working on vehicles with air conditioning system, when using the refrigerant as well as to the below-mentioned chapters can be found in the Workshop Manual „Air conditioning system with refrigerant R134a“ ➤ Air conditioning system with refrigerant R134a; Rep. gr. 00 technical data.

- ◆ General notes on the air conditioning system
- ◆ General instructions for refrigerant circuit
- ◆ Legal texts and legal regulations
- ◆ Refrigerant circuit
- ◆ Working with the A/C service station
- ◆ Detect leaks in the refrigerant circuit
- ◆ Removing contaminants from the refrigerant circuit
- ◆ Complaints
- ◆ Check the pressure in the refrigerant circuit (with the A/C service station)
- ◆ Replace components of the refrigerant circuit



Caution

Do not buckle or sharply bend the refrigerant lines.

There is a foil in the refrigerant lines which could be damaged.

Refrigerant lines must not be bent over a smaller radius $R = 100 \text{ mm}$.

Vehicles with start-stop system:

- ◆ On vehicles with activated start-stop system (recognizable by a message in the dash panel insert), the engine can start automatically if required.
- ◆ It is therefore necessary to ensure that the start-stop system is deactivated when carrying out work on the vehicle (ignition switched off; if required switch ignition on again).

Conditions for the activation/deactivation of the start-stop system
⇒ Operating Instruction Octavia II .

1.1 Notes regarding the odours coming from the heating and air conditioning unit

Numerous methods for cleaning the evaporator, which differ in their use and effect, are offered on the market. It is currently recommended to clean the evaporator of Skoda vehicles using the ultrasonic air conditioning system cleaning device -VAS 6189B-. When cleaning, proceed according to the enclosed instruction. If additional procedures are tested and approved by Skoda in the course of time, the corresponding notes can be found in the Workshop Manual ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 .

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2 Description of the air conditioning system



Note

Detailed description of the function of the air conditioning system can be found in the Workshop Manual „Air conditioning system with refrigerant R134a“ ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 technical data.

⇒ „2.1 Operation of the air conditioning system“, page 59

⇒ „2.2 Structure of the refrigerant circuit“, page 59

⇒ „2.3 Parts of the refrigerant circuit“, page 61

⇒ „2.4 Extractor, filler and measurement valves for quick couplings of the AC service station on the refrigerant circuit“, page 63

⇒ „2.5 Parts for securing the refrigerant circuit“, page 64

2.1 Operation of the air conditioning system

The temperature in the passenger compartment is influenced by radiant heat through the window and by the contact heat emitted by metallic parts. In order to provide agreeable temperatures for the passengers on very hot days, some of the ambient heat must be evacuated.

As it is a well known fact that heat spreads towards colder temperatures, an aggregate that generates lower temperatures has been fitted to the vehicle, i.e. the evaporator. Liquid refrigerant is continuously evaporated in this aggregate. The heat required for this operation is drawn from the air flowing through the evaporator.

The refrigerant gas together with the absorbed heat is pumped out of the evaporator by the AC compressor. The AC compressor's compression work increases the heat content and the temperature of the refrigerant. It is now considerably higher than the ambient air temperature.

The high-temperature refrigerant and its heat content flow to the condenser. There, because of the temperature difference between the refrigerant and the ambient air, the refrigerant releases heat into the ambient air via the condenser. The evaporated refrigerant is therefore liquified.

The refrigerant is also a heat conveyor. As it will be re-used, it is again pumped to the evaporator.

2.2 Structure of the refrigerant circuit



Note

*The parts marked with an * must only be repaired in specialist service centres which have suitably trained personnel and are fitted out for working on the refrigerant circuit.*

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HP = High-pressure side

LP = Low-pressure side



1 - Regulating valve for compressor of air conditioning system - N280- *

2 - AC compressor*

3 - Belt pulley

☐ with anti-lock device

4 - Oil drain plug*

5 - Pressure relief valve*

6 - High-pressure sender - G65-

7 - Connection with valve*

8 - Condenser*

9 - Fluid container with dessicator cartridge*

10 - Extractor, filler and measurement valve*

☐ High-pressure side

11 - Screw cap

12 - Expansion valve*

13 - Evaporator*

14 - Extractor and measurement valve*

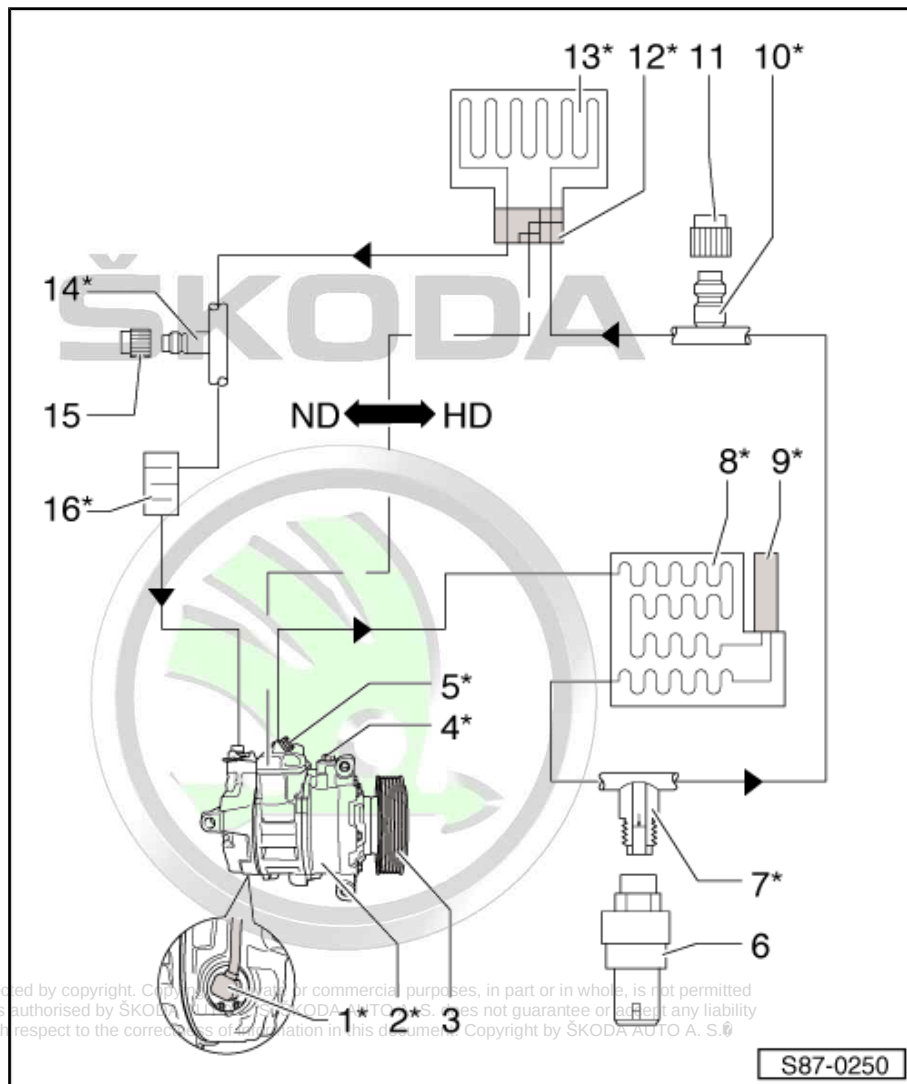
☐ Low-pressure side

15 - Screw cap

16 - Shock absorber*

☐ for damping of pressure fluctuations

☐ only fitted on certain models



S87-0250

2.3 Parts of the refrigerant circuit

AC compressor

Engine dependent AC compressors manufactured by the firms Denso, Zexel and Sanden are used. They differ only in the version.

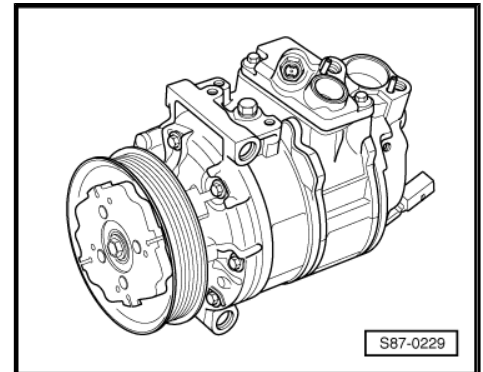
Externally controlled AC compressors with variable displacement are driven by the engine's ribbed V-belt. It does not have a magnetic clutch.

The belt pulley/compressor shaft grip occurs via a driver clutch.

The displacement of the AC compressor is controlled via an externally driven regulating valve with PWM signal on the suction side in accordance with the required cooling output.

The AC compressor continues operating with a minimum power supply requirement even when the air conditioning system is off.

The AC compressor sucks refrigerant gas from the evaporator, compresses it and transfers it to the condenser.



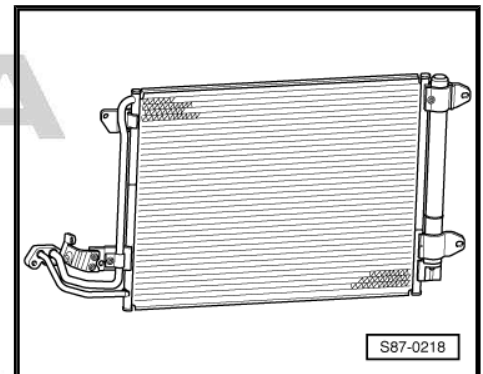
Note

The AC compressor contains refrigerant oil, which can be mixed with the R 134a refrigerant at all temperatures.

Condenser

The condenser dissipates heat from the compressed refrigerant gas into the ambient air.

During this process the refrigerant gas condenses and liquifies.

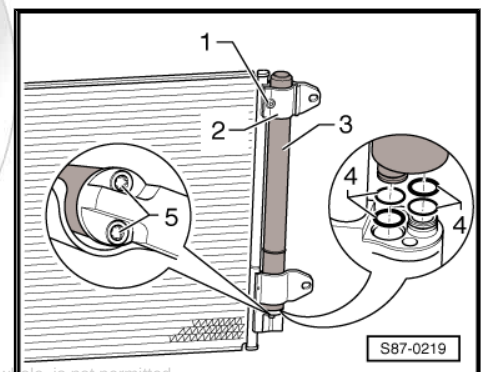


Fluid reservoir

The fluid reservoir -3- is bolted to the condenser or is its component.

It gathers the liquid drops and conveys them to the expansion valve in a constant flow.

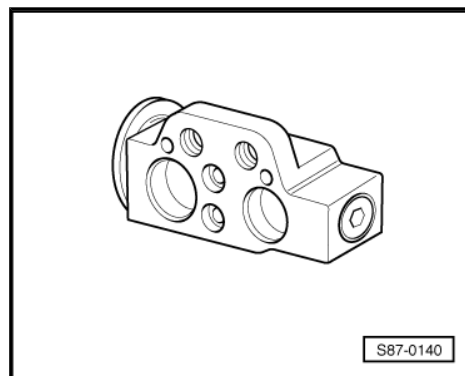
Humidity, that has penetrated into the refrigerant circuit during assembly, is bound by a dessicator cartridge integrated in the fluid reservoir.



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Expansion valve

The expansion valve atomizes incoming refrigerant and controls the flow in accordance with the different pressures in such a way that, depending on the heat transport, the vapour only becomes gaseous at the outlet of the evaporator.



Evaporator

The liquid refrigerant evaporates in the evaporator. The heat required for this operation is drawn from the air flowing through the evaporator fins.

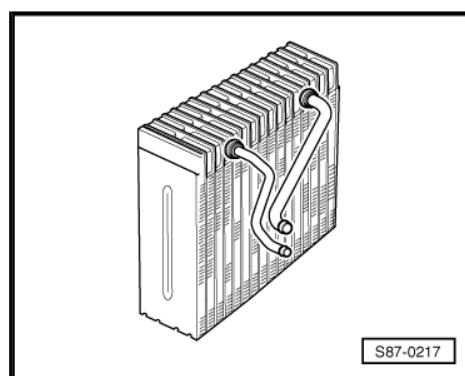
The air cools down the evaporator. The refrigerant evaporates and is sucked in with the absorbed heat as gas by the AC compressor.

The externally regulated AC compressor allows a variable air outlet temperature of 1 to 11°C.

Pipes and hoses of the refrigerant circuit

The mixture of refrigerant oil and refrigerant R 134a corrodes certain metals (e.g. copper) and alloys and dissolves certain hose materials.

Therefore only original spare parts may be used.



Note

Pay attention to the prescribed tightening torques for the screwed connections.

O-ring seals

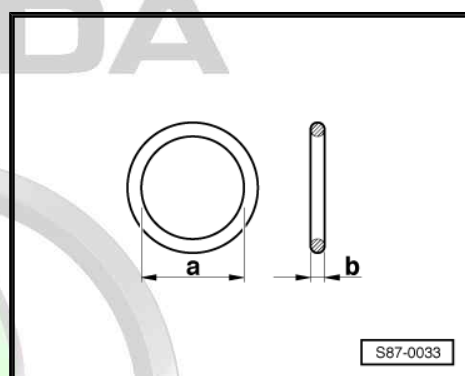
These O-rings seal off the connection points between the individual components of the refrigerant circuit.

Only use O-rings that are resistant to refrigerant R 134a and related refrigerant oils. Original spare parts offer this guarantee.

Black and coloured O-rings are fitted.

O-ring seals:

- ◆ Only use once, replace.
- ◆ Pay attention to correct diameter -a- and -b-.
- ◆ Moisten with refrigerant oil before inserting.



2.4 Extractor, filler and measurement valves for quick couplings of the AC service station on the refrigerant circuit



WARNING

Before removing the extractor and filler valves, the refrigerant must be drained off with the aid of the A/C service station.

If the refrigerant circuit is not opened within 10 minutes after draining it off, pressure can arise in the refrigerant circuit due to the post-evaporation. Drain the refrigerant once again.

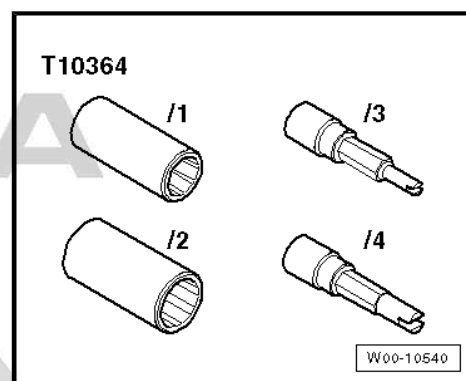


Note

- ◆ Only use valves and connections that are resistant to refrigerant R134a and related refrigerant oils.
- ◆ Different connections (outside diameter) for the high-pressure and low-pressure side guarantee that the quick-coupling adapters are not interchanged.
- ◆ Carefully screw in the handwheel of the service coupling after connecting the A/C service station and only so far until the valve of the service connection is safely opened (observe the pressure gauge, do not over-press the valve).
- ◆ After disconnecting the quick-coupling adapter tighten the caps to prevent any dirt from penetrating.

Special tools and workshop equipment required

- ◆ Socket inserts -T10364-



Arrangement in the vehicle, see ➔ [page 69](#) .

Extractor, filler and measurement connections with Schrader valve



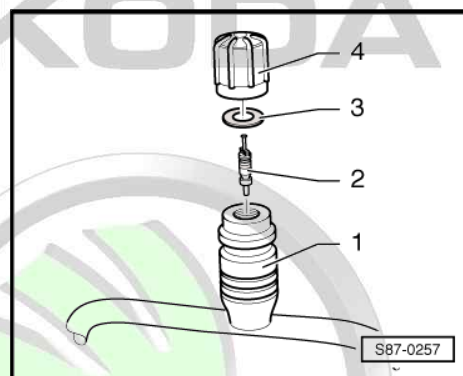
Note

- ◆ Carefully tighten the valve core -2- because of the low tightening torque.
- ◆ These valves are available in different versions. Therefore they have different tightening torques. If the valve core -2- has a thread of VG5 (5.2 x 0.7 mm, tyre valve) the tightening torque is 0.4±0.1 Nm, a valve core with a thread of M6 x 0.75 mm has a tightening torque of 0.9±0.1 Nm and a valve core with a thread of M8 x 1.0 mm has a tightening torque of 2.0±0.2 Nm.



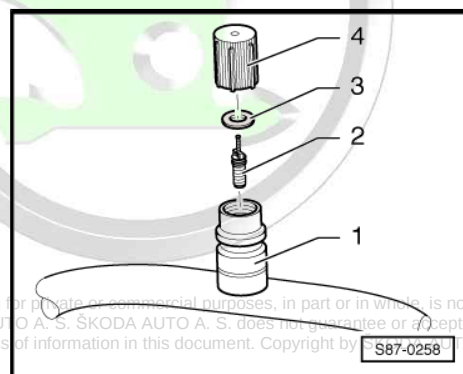
High-pressure side

- 1 - Service coupling in the refrigerant line
- 2 - Extractor, filler and measurement valve
- 3 - Sealing ring
- 4 - Cap



Low-pressure side

- 1 - Service coupling in the refrigerant line
- 2 - Extractor and measurement valve
- 3 - Sealing ring
- 4 - Cap



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2.5 Parts for securing the refrigerant circuit

Pressure relief valve

The pressure relief valve is located on the AC compressor and opens in the event of overpressure. The refrigerant does not flow out completely.

If the valve was opened the adjoining area is also covered in oil.

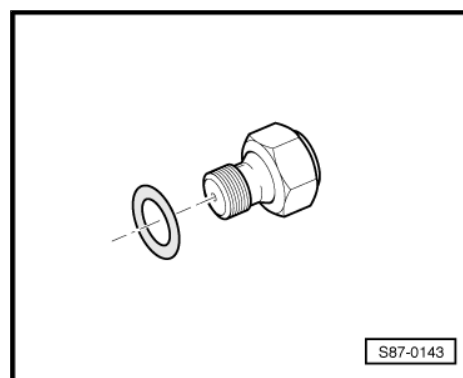
Opening pressure: 4 ± 0.4 MPa (40 ± 4 bar)

Closing pressure: at least 3.1 MPa (31 bar)



Note

If the pressure relief valve was opened, determine the cause of the overpressure in the system and eliminate it.



Belt protection for blocked AC compressor

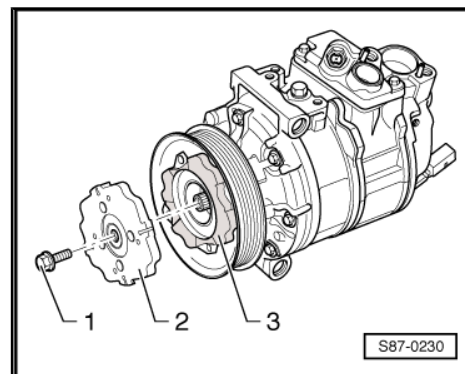
The AC compressor operates continuously via a driver clutch -2- and -3- in the belt drive, whether or not the air conditioning system is switched on.

If the AC compressor blocks, the rubber elements -3- will shear off or the driver disc -2- will become deformed depending on the compressor temperature (it depends on the temperature).

In any case the belt pulley of the AC compressor can rotate while the driver disc/compressor shaft is at a standstill.

Replace the AC compressor.

Various AC compressors with a differently designed anti-lock device are fitted engine dependent (➤ [page 67](#)).



Note

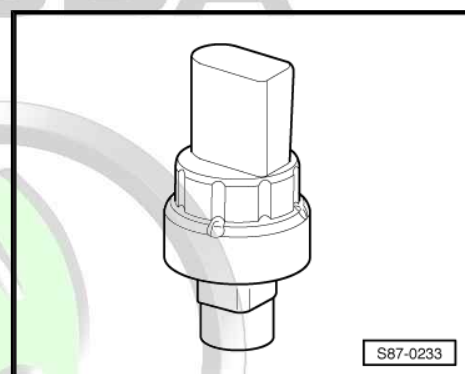
- ◆ This anti-lock device applies for the Denso AC compressor.
- ◆ The anti-lock device for the AC compressors Zexel and Sanden is designed differently.

High-pressure sender -G65-

The high-pressure sender -G65- determines the pressure in the refrigerant circuit and transmits the values to the Air conditioning system control unit -J301- (climatic) or to the Climatronic control unit -J255- .

The following are shifted via these control units:

- ◆ The radiator fan -V7- switches to the next speed in the event of a pressure rise in the refrigerant circuit
- ◆ Reduction of the compressor output if the pressure is too high, 3.2 MPa (32 bar), e.g. too little engine cooling
- ◆ Reduction of the compressor output if the pressure is too low, 0.2 MPa (2 bar), e.g. refrigerant loss

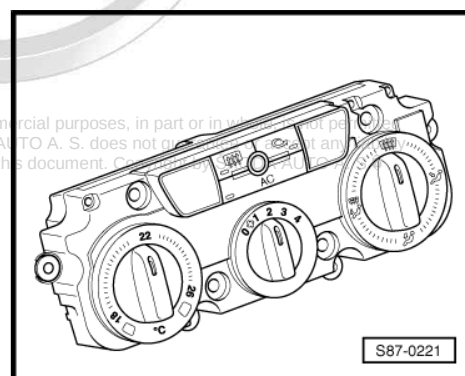


Air conditioning system control unit -J301- (Climatic) or Climatronic control unit -J255- (Climatronic)

The air conditioning system control unit -J301 - is integrated in the heating and air conditioning system control.

It processes information such as ambient temperature, actual and required interior temperature, evaporator temperature, pressure in the refrigerant circuit, engine load and driving conditions.

Depending on the required cooling output the air conditioning system control unit -J301 - sends a PWM signal (pulse width modulated) to the regulating valve of the AC compressor.



Note

- ◆ On vehicles fitted with Climatronic, the Climatronic control unit -J255- takes over these functions.
- ◆ As of MY 09, different arrangement of actuating elements and displays.



Regulating valve for compressor of air conditioning system - N280-

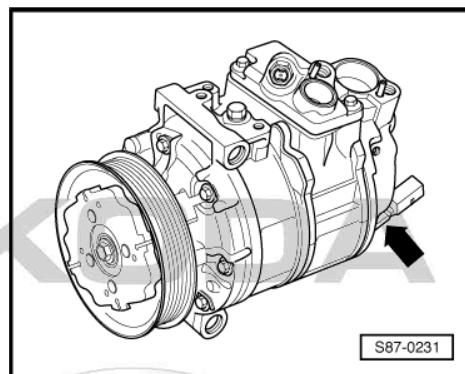
Depending on the required cooling output the regulating valve -arrow- (component of the AC compressor, cannot be replaced separately) receives a PWM signal from the air conditioning system control unit - J301- or Climatronic control unit -J255- and regulates the displacement of the AC compressor via the suction pressure (position of the articulated disc).

This guarantees that the output of the AC compressor does not exceed the requirements.



Note

Depending on the type of manufacturer, the regulating valve can be constructively designed differently.



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3 Contents

⇒ „3.1 Refrigerant R134a“, page 67

⇒ „3.2 Refrigerant oil“, page 67

3.1 Refrigerant R134a

Refrigerant circuit

525 ± 25 g refrigerant R 134a (for all AC compressors)



Note

- ◆ Fill the refrigerant circuit on the high-pressure side only.
- ◆ Always fill the refrigerant circuit up to the top tolerance limit (there will still be some refrigerant in the filling hoses).

3.2 Refrigerant oil

As refrigerant oil is strongly hygroscopic (it absorbs humidity), protect open cans against penetrating humidity and immediately seal tight after use.



Note

- ◆ Refrigerant oils from the containers which were opened for a longer period of time, cannot be used.
- ◆ Because of its chemical properties, refrigerant oil must not be disposed of with engine oil or gearbox oil. The refrigerant oil must be disposed of as oil of unknown origin.
- ◆ The total volume of refrigerant oil is contained in the spare part AC compressor.

Manufacturer	Part number of AC compressor	Filling capacity	Part number of refrigerant oil
Denso	1K0 820 803 F	180 ± 10 cm ³	G 052 300 A2
	1K0 820 803 E	140 ± 10 cm ³	
	1K0 820 859 M,S	140 ± 10 cm ³	
	1K0 820 859 N,H,P,T	90 ± 10 cm ³	
	1K0 820 808 A,	90 ± 10 cm ³	
	8J0 260 805	90 ± 10 cm ³	
Zexel	1K0 820 803 H	120 ± 10 cm ³	G 052 154 A2
Sanden	1K0 820 803 G	110 ± 10 cm ³	G 052 154 A2
	1K0 820 859 F,G,Q	110 ± 10 cm ³	
	1K0 820 808 B,	110 ± 10 cm ³	
Delphi	5N0 820 803	110 ± 10 cm ³	G 052 154 A2
	5N0 820 803 A,B,C	110 ± 10 cm ³	

Oil distribution

The oil, which before the first activation of the air conditioning system was located in the AC compressor's oil pan, is distributed as follows in the refrigerant circuit:



Oil distribution

◆ AC compressor	approx. 50 %
◆ Condenser	approx. 10 %
◆ Air intake hose	approx. 10 %
◆ Evaporator	approx. 20 %
◆ Fluid reservoir	approx. 10 %

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4 Repairing the air conditioning system - engine compartment



Note

- ◆ *The parts marked with an * must only be repaired in specialist service centres which have suitably trained personnel and are fitted out for working on the refrigerant circuit.*
- ◆ *Comply with the safety measures when working on vehicles with air conditioning system and when using refrigerant R 134a and observe the instructions for working on the refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 technical data.*
- ◆ *The engine must not be started if the refrigerant lines are not connected to the AC compressor and the AC compressor is shut off with plugs (risk of overheating because of the internal refrigerant oil circuit).*
- ◆ *If the refrigerant circuit was separated, it is not always necessary to replace the dessicator, see ⇒ [page 76](#) .*
- ◆ *If the earth strap of the battery was disconnected, pay attention to the sequence when connecting it ⇒ Electrical System; Rep. gr. 27 .*

⇒ Fig. „Remove refrigerant lines from the AC compressor“ , page [71](#)

⇒ Fig. „Remove the refrigerant lines from the condenser“ , page [72](#)

⇒ Fig. „Removing and installing, inspecting high pressure sender -G65-“ , page [72](#)

Summary of components

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1 - Ambient temperature sensor -G17-

- ☐ removing and installing
⇒ [page 34](#)
- ☐ check ⇒ Vehicle diagnostic tester
- ☐ Fitting location: below the front left bumper at the bumper support

2 - Fluid container with dessicator cartridge*

- ☐ removing and installing
⇒ [page 73](#)
- ☐ Replace fluid reservoir (dessicator cartridge), if... ⇒ [page 76](#)

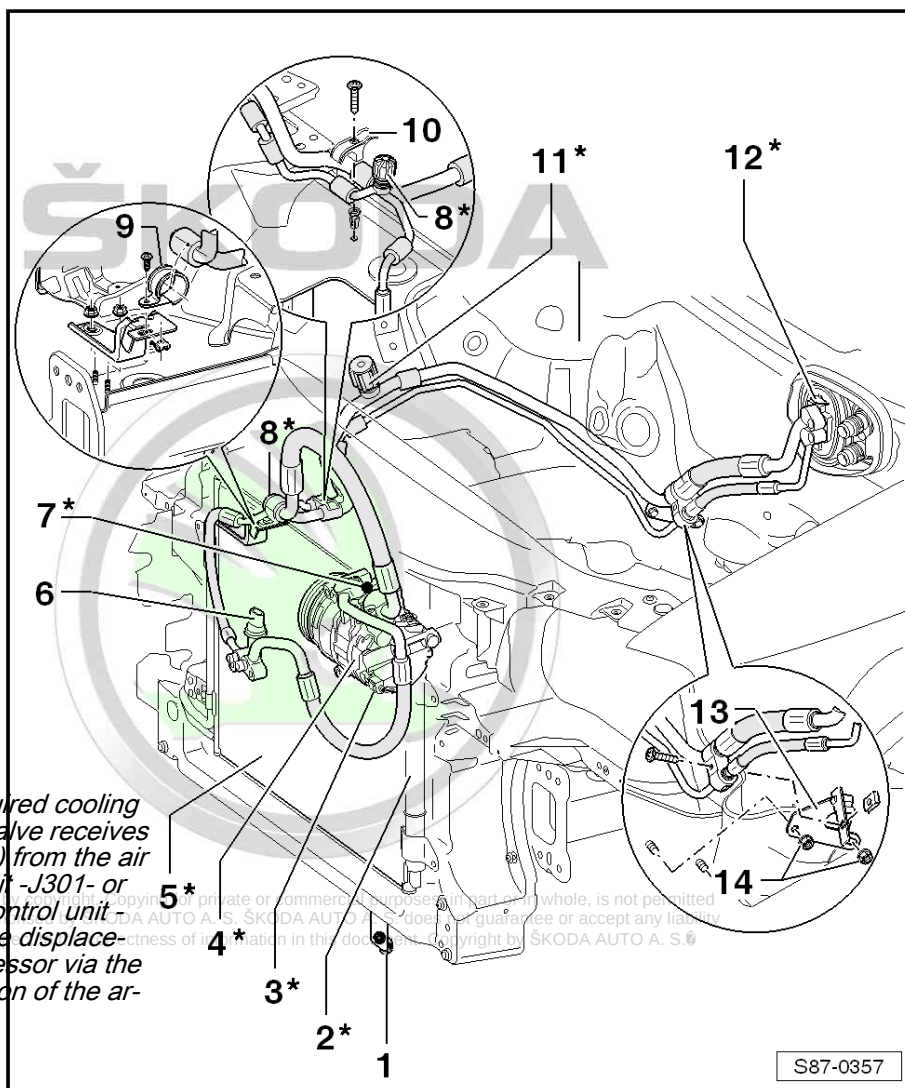
3 - Regulating valve for compressor of air conditioning system - N280- *

- ☐ Elements of the AC compressor, do not replace individually



Note

Depending on the required cooling output the regulating valve receives a PWM signal (500 Hz) from the air conditioning control unit -J301- or from the Climatronic control unit -J255- and regulates the displacement of the AC compressor via the suction pressure/position of the articulated disc.



4 - AC compressor*

- ☐ various manufacturers:
⇒ [page 67](#) ; Contents
- ☐ Removing and installing the refrigerant lines ⇒ [page 71](#)
- ☐ Belt protection for blocked AC compressor ⇒ [page 64](#)
- ☐ Removing and installing AC compressor ⇒ [page 77](#)
- ☐ Running-in instruction ⇒ [page 78](#)

5 - Condenser*

- ☐ Removing and installing the refrigerant lines ⇒ [page 72](#)
- ☐ Removing and installing the condenser ⇒ [page 81](#)

6 - High-pressure sender -G65-

- ☐ function ⇒ [page 64](#)
- ☐ removing and installing ⇒ [page 72](#)
- ☐ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“

7 - Pressure relief valve*

- ☐ Replace O-ring (⇒ Electronic Catalogue of Original Parts).
- ☐ Tightening torque: 10 Nm
- ☐ function ⇒ [page 64](#)
- ☐ check ⇒ [page 78](#)

8 - Extractor and filling valve*

- ☐ High-pressure side

- ☐ for exhausting, filling and measuring
- ☐ Contents ⇒ [page 67](#)
- ☐ always screw on cap with gasket
- ☐ Description, removing and installing ⇒ [page 63](#)

9 - Clamp

10 - Retaining clip

11 - Exhaust valve*

- ☐ Low-pressure side
- ☐ for exhaust and measurement only
- ☐ always screw on cap with gasket
- ☐ Description, removing and installing ⇒ [page 63](#)

12 - Expansion valve*

- ☐ removing and installing ⇒ [page 79](#)

13 - Holder for refrigerant lines

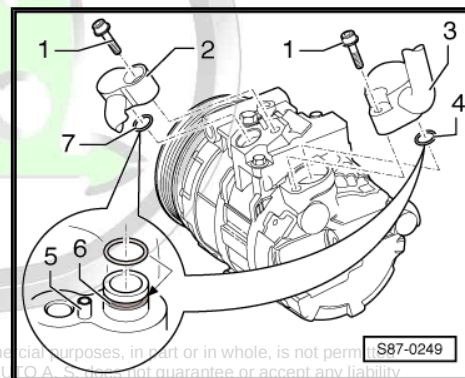
14 - 20 Nm

Remove refrigerant lines from the AC compressor



Note

- ◆ *Empty the refrigerant circuit with the aid of the A/C service station.*
- ◆ *After disconnecting, shut off the refrigerant lines and the AC compressor connections with suitable caps to protect them from the penetration of ambient humidity.*



1 - 23 Nm

2 - Connection fitting for high-pressure line

- ◆ Torsion stop with sleeve

3 - Connection fitting for low-pressure line

- ◆ Torsion stop with sleeve

4 - O-ring (low-pressure side)

- ◆ replace (⇒ Electronic Catalogue of Original Parts)

5 - Fitting sleeve

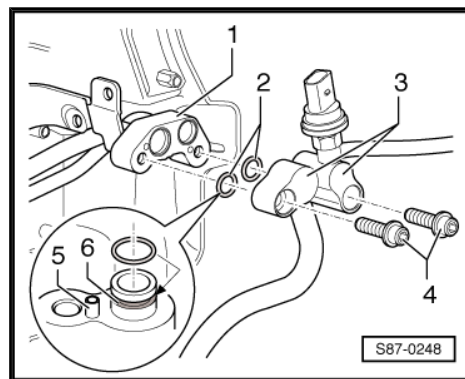
6 - Groove for O-ring

7 - O-ring (high-pressure side)

- ◆ replace (⇒ Electronic Catalogue of Original Parts)

Remove the refrigerant lines from the condenser

- 1 - Connection fitting for condenser
- 2 - O-rings
- ♦ replace (⇒ Electronic Catalogue of Original Parts)
- 3 - Connection fitting for refrigerant line
- ♦ Torsion stop with sleeve
- 4 - 10 Nm
- 5 - Fitting sleeve
- 6 - Groove for O-ring

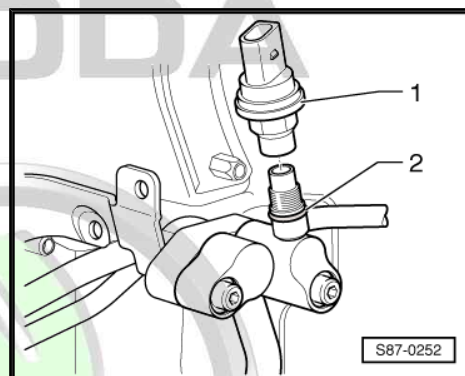


Note

Shut off refrigerant line and condenser connection.

Removing and installing, inspecting high pressure sender -G65-

- Switch off the ignition and all electrical components.
- Unplug 3-pin connector from high pressure sender -G65- -1-.
- Unscrew high pressure sender.
- Tightening torque: 8 Nm
- Replace O-ring (⇒ Electronic Catalogue of Original Parts), moisten with refrigerant oil and carefully insert.



Note

- ♦ *The refrigerant circuit remains closed, connection to valve.*
- ♦ *The high pressure sender -G65- -1- can also be fitted according to engine variant on another point close to the condenser.*

Functional test

The function of the high pressure sender -G65- is checked via self-diagnosis of the air conditioning system control unit -J301- ⇒ Vehicle diagnostic tester.

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5 Removing and installing parts of the air conditioning system - engine compartment



Note

Detailed description of the air conditioning system, instructions for repair work and when using the refrigerant R134a can be found in the Workshop Manual „Air conditioning system with refrigerant R134a“ ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 technical data.

⇒ „5.1 Removing and installing dessicator cartridge“, page 73

⇒ „5.2 Replacing dessicator cartridge / fluid reservoir with dessicator“, page 76

⇒ „5.3 Removing and installing AC compressor“, page 77

⇒ „5.4 Running-in instructions of the AC compressor“, page 78

⇒ „5.5 Inspecting the pressure relief valve on the AC compressor“, page 78

⇒ „5.6 Removing and installing the expansion valve“, page 79

⇒ „5.7 Removing and installing the cover plate for expansion valve“, page 80

⇒ „5.8 Removing and installing the condenser“, page 81

5.1 Removing and installing dessicator cartridge

On condensers:

- ◆ „Denso“ the container is a component part with the dessicator of the condenser and cannot be replaced individually.
- ◆ „Showa“ and „Fujikoki“ the dessicator is replaced together with the container ⇒ [page 74](#) .
- ◆ „Modine“ the container is a component part of the condenser. The dessicator and the strainer can be replaced ⇒ [page 74](#) .



Note

- ◆ *The condensers can be mutually exchanged.*
- ◆ *Repairs must only be carried out in specialist service centres which have suitably trained personnel and are fitted out for working on the refrigerant circuit.*
- ◆ *If the refrigerant circuit was separated, it is not always necessary to replace the dessicator, see ⇒ [page 76](#) .*
- ◆ *All opened components of the refrigerant circuit must be protected from the penetration of ambient humidity with suitable plugs.*
- ◆ *When replacing, pay attention to the prescribed volume of refrigerant oil in the refrigerant circuit see „Air conditioning system with refrigerant R134a“ ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 technical data, chapter „Replacing components of the refrigerant circuit“.*

5.1.1 Condensers manufactured by Showa and Fujikoki

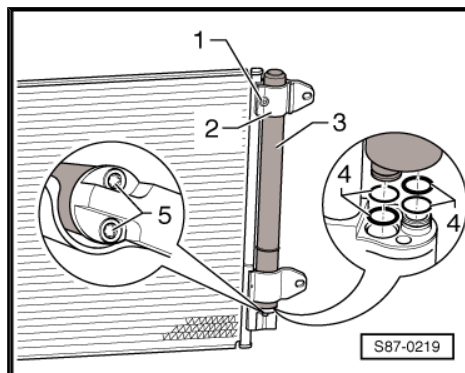
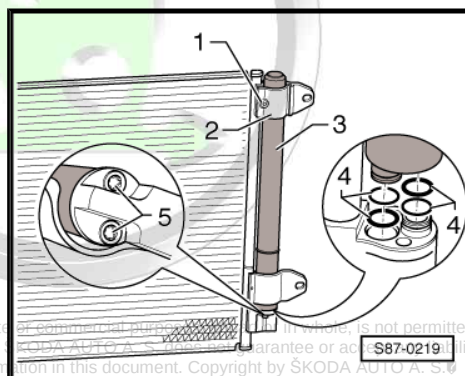
Removing

- Drain the refrigerant circuit with the aid of the A/C service station.
- Put lock carrier in service position ⇒ Body Work; Rep. gr. 50 .
- Release fixing screws for the radiator ⇒ Engine; Rep. gr. 19 .
- Attach radiator with workshop tools (cable strap or welding wire) to workshop crane -V.A.G 1202 A- and lifting device -2024 A- and unhook radiator from lock carrier. Coolant hoses and refrigerant lines remain connected.
- Unscrew screw -1- (if necessary, remove expanding rivet) and remove retaining clip -2-.
- Unscrew screws -5- and pull out the fluid reservoir with desiccator -3- towards the top.

Install

Installation is carried out in the reverse order. Pay attention to the following:

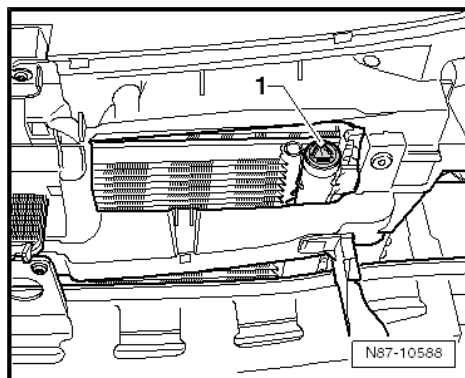
- ◆ Replace O-rings -4-.
- ◆ First tighten the screws -5- and then the screw -1- to 5 Nm.
- ◆ Fill the refrigerant circuit with the aid of the A/C service station.



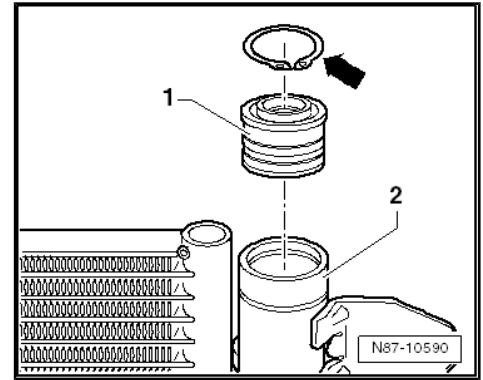
5.1.2 Condensers manufactured by Modine

Removing

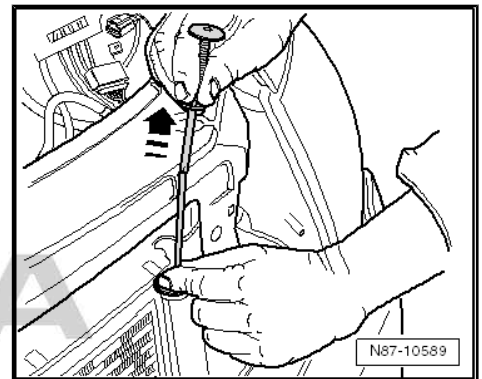
- Release top protective cap -1- from dessicator reservoir.
- Drain the refrigerant circuit with the aid of the A/C service station.



- Press the screw cap -1- into the fluid reservoir.
- Remove Seeger ring -arrow- and pull the screw cap -1- out of the reservoir with the aid of a screw M12 -2-.



- Pull the dessicator bag out of the reservoir using a commercially available pick-up tool -arrow-.



- Make a welding wire (Ø 2 mm) as shown in the illustration.

a - 380 mm

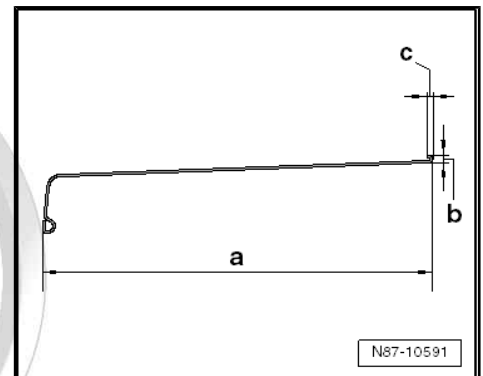
b - max. 7 mm

c - max. 6 mm



Note

To avoid damaging the condenser, absolutely hook the welding wire onto the strainer as shown in the illustration.

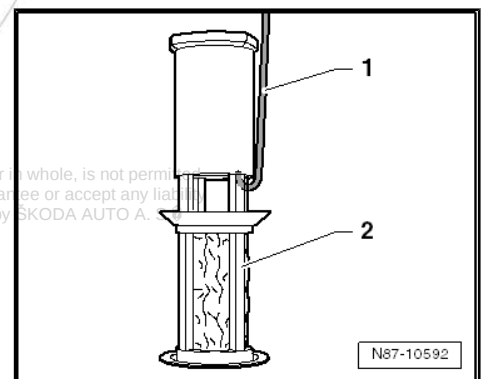


- Carefully pull the strainer -2- with the welding wire -1- out of the condenser.

Install

Installation is performed in the reverse order, pay attention to the following points:

- Insert a new strainer into the reservoir and then insert a new dessicator bag.

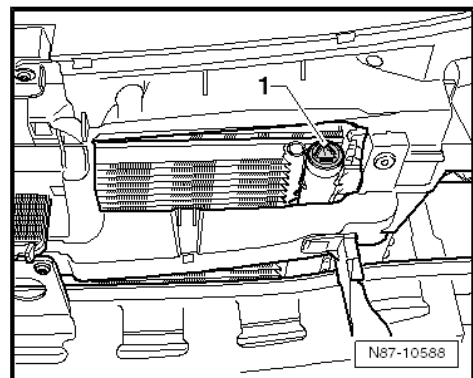
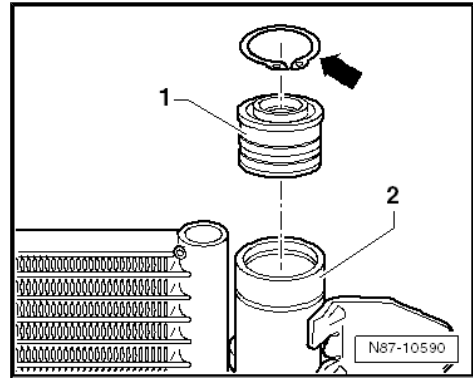




- Check the fluid reservoir -2- via the opening for contamination or damage to the sealing surfaces.
- Replace the screw cap -1- with the relevant gasket. Slightly moisten the gasket of the screw cap with refrigerant oil before installing.

Pay attention to the correct fit of the gasket in the screw cap -1-.

- Insert Seeger ring -arrow-.
- Screw in the protective cap -1-.
- Re-install the remaining component parts which were removed.
- Fill the refrigerant circuit with the aid of the A/C service station.



5.2 Replacing dessicator cartridge / fluid reservoir with dessicator

The dessicator cartridge / fluid reservoir with dessicator has to be replaced, if:

- ◆ the coolant circuit was blown through or flushed
- ◆ the AC compressor has blocked
- ◆ the system has been opened as of an undetermined time (creeping leakage)

The dessicator cartridge / fluid reservoir with dessicator must not be replaced, if:

- ◆ after an accident the fluid reservoir is not damaged
- ◆ the repair at the refrigerant circuit is performed for a short period (within the specified repair time) and the vehicle is not older than 5 years
- ◆ for the repair of other components, the refrigerant circuit must be opened for a short period and the vehicle is not older than 5 years

5.3 Removing and installing AC compressor

Note

- ◆ Repairs must only be carried out in specialist service centres which have suitably trained personnel and are fitted out for working on the refrigerant circuit.
- ◆ Attachment of the bracket for auxiliary units -4- ⇒ Engine; Rep. gr. 13 .
- ◆ If the AC compressor only has to be removed from the bracket -4- because of the removal of other components, the refrigerant circuit must not be opened and the AC compressor with connected refrigerant lines must be attached free of stress to the body.

Removing

- Drain the refrigerant circuit with the aid of the A/C service station.
- Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
- Remove the V-ribbed belt ⇒ engine; Rep. gr. 13 .
- Unplug connector -2-.
- Removing refrigerant lines -1- from the AC compressor ⇒ [page 69](#) .
- Release screws -3- and remove AC compressor.

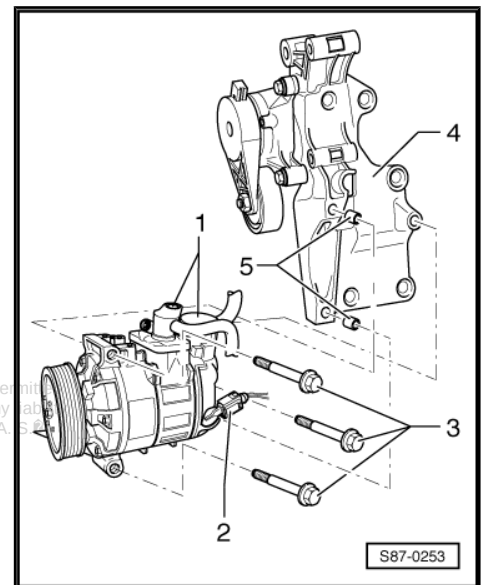
Install

Note

- ◆ The total volume of refrigerant oil is contained in the spare part AC compressor.
- ◆ When replacing, pay attention to the prescribed volume of refrigerant oil in the refrigerant circuit see „Air conditioning system with refrigerant R134a“ ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 technical data, chapter „Replacing components of the refrigerant circuit“.

Installation is carried out in the reverse order. Pay attention to the following:

- Before fitting the new AC compressor rotate it 10 times by hand.





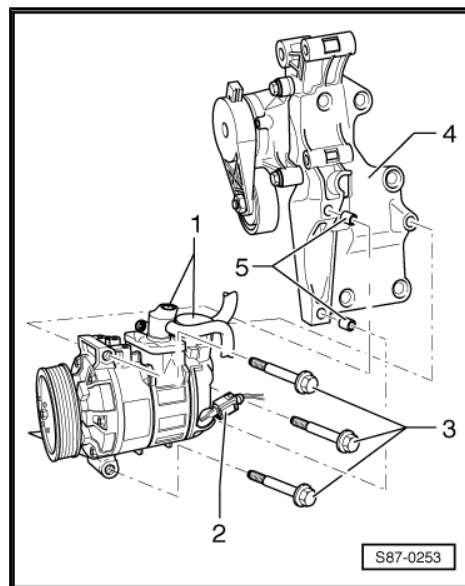
- When installing make sure that the dowel sleeves -5- are fitted.
Tighten screws -3- to 25 Nm.
- Attach refrigerant lines -1- to the AC compressor ⇒ [page 69](#) .



Note

The engine must not be started if the refrigerant lines are not connected to the AC compressor and the AC compressor is shut off with plugs (risk of overheating because of the internal refrigerant oil circuit).

- Replace fluid reservoir with dessicator ⇒ [page 73](#) .
- Fill the refrigerant circuit with the aid of the A/C service station.
- Comply with the running-in instructions for the AC compressor ⇒ [page 78](#) .



5.4 Running-in instructions of the AC compressor

After the initial filling of the refrigerant circuit or if after blowing through the refrigerant circuit new refrigerant oil was filled in (⇒ [page 67](#)), the whole volume of refrigerant oil is in the AC compressor.

To avoid damaging the AC compressor, the AC compressor must be loaded as follows:

- Position the rotary switch for air distribution on „person flow“.
- Open all dash panel vents.
- Position the fresh-air blower switch at least on speed 3.
- Position rotary switch for temperature selection on the left stop (minimum temperature).

With Climatronic select the temperature „LO“.

- Start engine.
- Switch on air condition system once idle stabilisation has been achieved (after approx. 5 seconds).

With Climatronic set to operating mode „AUTO“.

- Run engine without interruption for at least 5 minutes at idle speed.
- Subsequently switch off engine.

This shuts off the oil distribution in the refrigerant circuit and the AC compressor can be fully loaded.

5.5 Inspecting the pressure relief valve on the AC compressor

- ♦ Task: Protects the refrigerant circuit from excessive pressure.



DANGER!

There is a risk through icing.

The pressure relief valve drains the coolant while the engine is running and if an excessive pressure exists in the refrigerant circuit.

Switch off engine.

Inspecting the pressure relief valve on the AC compressor

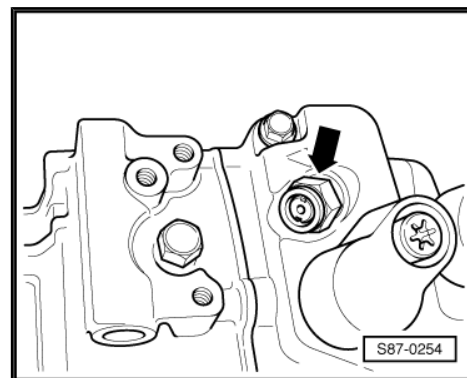
The pressure relief valve -arrow- has operated if refrigerant oil sticks in the immediate vicinity:

- ◆ In this case, the vehicle must be repaired in a specialist service centre which has suitably trained personnel and is fitted out for working on the refrigerant circuit.



Note

The position of the pressure relief valve varies for the different AC compressors. The function is however the same.



5.6 Removing and installing the expansion valve



Note

- ◆ *Repairs must only be carried out in specialist service centres which have suitably trained personnel and are fitted out for working on the refrigerant circuit.*
- ◆ *Before removing, empty the refrigerant circuit with the aid of the A/C service station.*
- ◆ *All opened components of the refrigerant circuit must be protected from the penetration of ambient humidity with suitable plugs.*
- ◆ *The O-rings must be replaced ⇒ Electronic Catalogue of Original Parts and before installing moisten with refrigerant oil.*
- ◆ *On certain engines remove the intake hose to the exhaust turbocharger, the DPF cover and if necessary the intake hose to the air filter for an easier access to the engine cover ⇒ Engine, corresponding repair group .*



1 - Screws, 12 Nm

2 - Refrigerant lines on expansion valve

3 - O-ring

4 - Expansion valve

☐ Removing:

- Vehicles with cover plate in front of the expansion valve - remove cover plate for expansion valve ➔ [page 80](#) .
- Release screws - Pos. 1 - and pull the refrigerant lines - Pos. 2 - out of the expansion valve.
- Release screws - Pos. 9 - and remove the expansion valve from the heat-protection insulation - Pos. 6 - .

☐ Installing:

- Installation is carried out in the reverse order.



Note

Observe the correct seating of the O-rings on the connection pipes - Pos. 10 - to the evaporator and on the refrigerant lines - Pos. 2 - .

5 - O-ring

6 - Heat-protection insulation

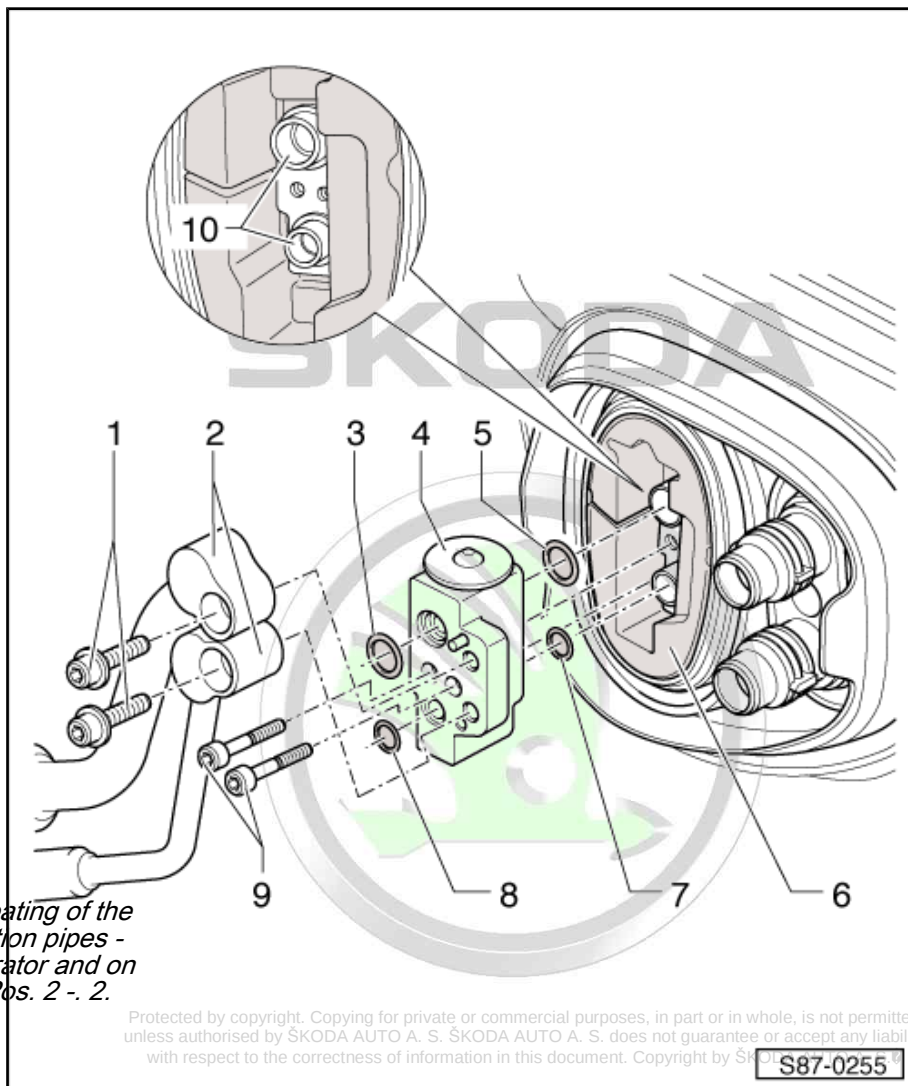
7 - O-ring

8 - O-ring

9 - Screws, 5 Nm

10 - Connection pipes

- ☐ for heat exchanger



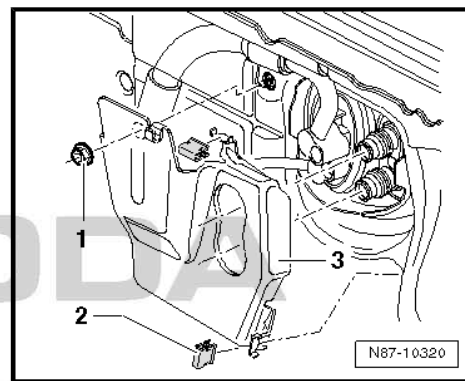
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5.7 Removing and installing the cover plate for expansion valve

- Detach hoses from heat exchanger see ➔ [page 21](#) .

- Remove nut -1- (6 Nm).
- Release the clamps -2- and remove the cover plate -3-.



5.8 Removing and installing the condenser



Note

- ◆ Repairs must only be carried out in specialist service centres which have suitably trained personnel and are fitted out for working on the refrigerant circuit.
- ◆ Before removing, empty the refrigerant circuit with the aid of the A/C service station.
- ◆ All opened components of the refrigerant circuit must be protected from the penetration of ambient humidity with suitable plugs.
- ◆ When replacing, pay attention to the prescribed volume of refrigerant oil in the refrigerant circuit see „Air conditioning system with refrigerant R134a“ ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 technical data, chapter „Replacing components of the refrigerant circuit“.

Removing

- Remove the lock carrier ⇒ Body Work; Rep. gr. 50 and secure the radiator, for example with wire, so that the intake hoses are not excessively strained.
- Removing refrigerant lines at the condenser ⇒ [page 69](#) .
- Release fixing screws -4- and -6- and remove condenser.

Summary of components



1 - Condenser

- ☐ secured with 5 screws at the radiator

2 - Sealing strips

- ☐ Stick at top, at bottom and at the sides of the condenser
- ☐ they are no longer fitted in vehicles manufactured after 03.06

3 - Support



Note

The spacer bracket is only fitted to certain models!

4 - Screw, 5 Nm

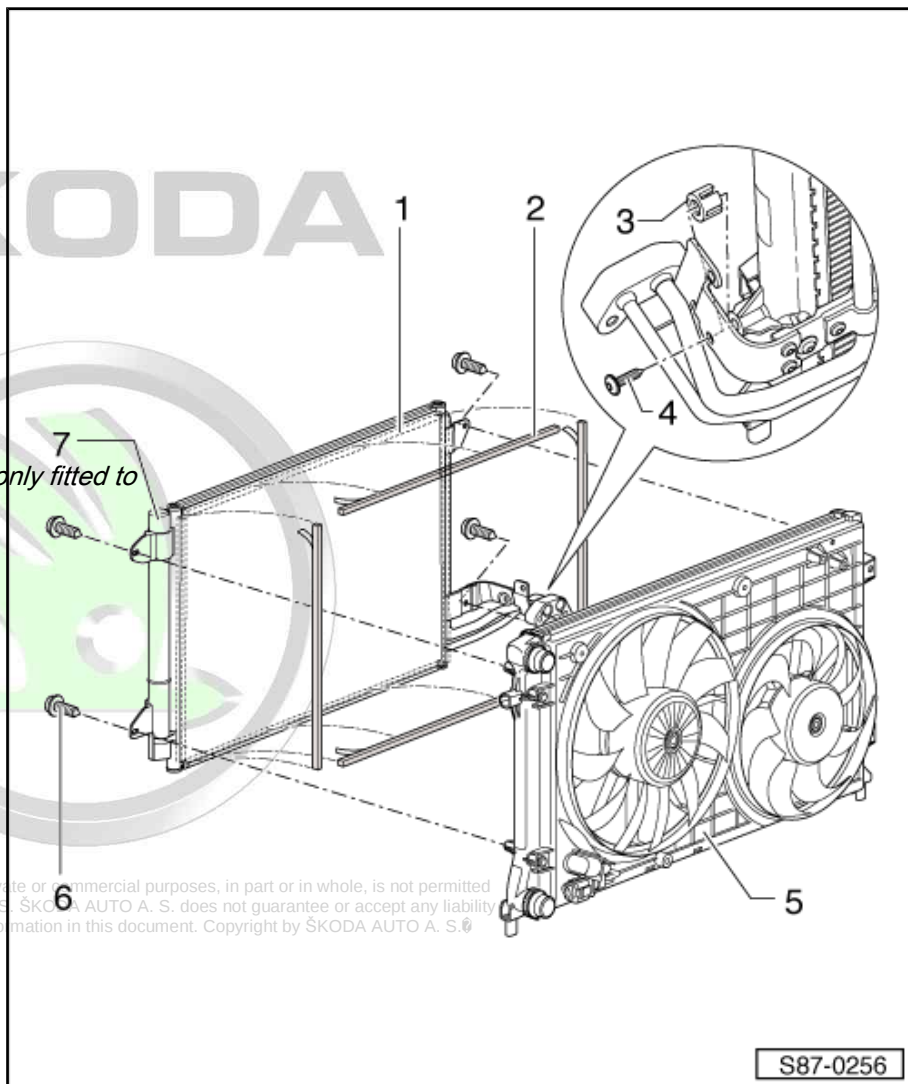
5 - Radiator

6 - Screws, 5 Nm

- ☐ 4 pieces

7 - Fluid reservoir with dessicator

- ☐ removing and installing
⇒ [page 73](#)



Install

Installation is performed in the reverse order, pay attention to the following points:

- First tighten the screw -4-, subsequently the screws on the right and on the left side of the condensor.

6 Removing and installing the heating and air conditioning unit from the vehicle

(Climatic, air conditioning system with manual control and Climatronic)

Special tools and workshop equipment required

- ◆ Hose clamp -MP7-602 (3094)-
- ◆ Hose clamp -T30096 (3093)-
- ◆ Pneumatic gun, commercially available

Removing and installing



Note

- ◆ *Repairs must only be carried out in specialist service centres which have suitably trained personnel and are fitted out for working on the refrigerant circuit.*
- ◆ *A second mechanic is required occasionally for removing and installing the heating and air conditioning unit.*
- ◆ *On certain engines remove the engine cover, the intake hose to the exhaust turbocharger, the DPF cover and if necessary the intake hose to the air filter for an easier access to the expansion valve ⇒ Engine, corresponding repair group .*
- Drain the refrigerant circuit with the aid of the A/C service station.
- Disconnect battery earth strap ⇒ Electrical System; Rep. gr. 27 .
- Removing the dash panel ⇒ Body Work; Rep. gr. 70 .
- Separate the rear duct of the right and left footwell ⇒ [page 6](#) .



DANGER!

The coolant temperature can be over 100 °C when the engine is warm. The cooling system is under pressure - risk of scalding!

Before repairs, reduce pressure and temperature if necessary.

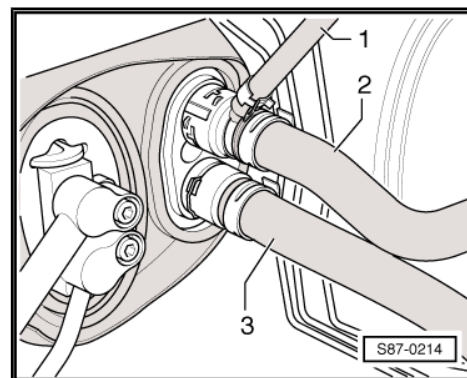
- Pinch off coolant hose -1- with the hose clamp -MP7-602 (3094)- .
- Pinch off coolant hoses -2- and -3- with hose clamp -T30096 (3093)- .



Note

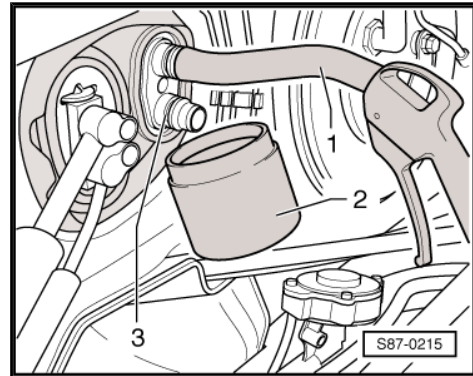
If the heat exchanger is replaced, the coolant must be replaced. In this case, drain the coolant ⇒ Engine ⇒ Rep. gr. 19 .

- Separate the quick couplings at the heat exchanger.
- Vehicles with cover plate in front of the expansion valve - remove cover plate for expansion valve ⇒ [page 80](#) .

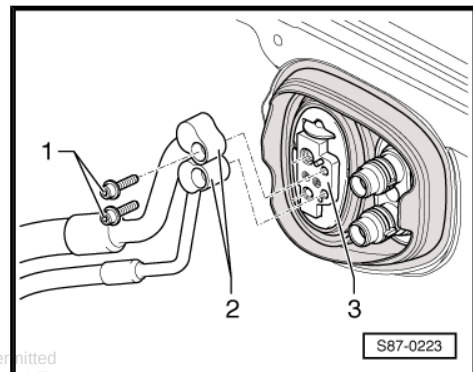




- Place the hose -1- a little onto the upper connection.
- Hold a container -2- below the lower connection -3-.
- Carefully blow with a pneumatic gun the remaining coolant out of the heat exchanger into the container -2-.



- Release screws -1- of refrigerant lines -2-.
- Remove the refrigerant lines from the expansion valve -3-.
- Shut off the openings of the refrigerant lines and expansion valve.
- Cover the floor covering in the vehicle interior with a liquid impermeable foil and absorbant paper.



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1 - Screw, 4,5 Nm

2 - Screws, 4,5 Nm

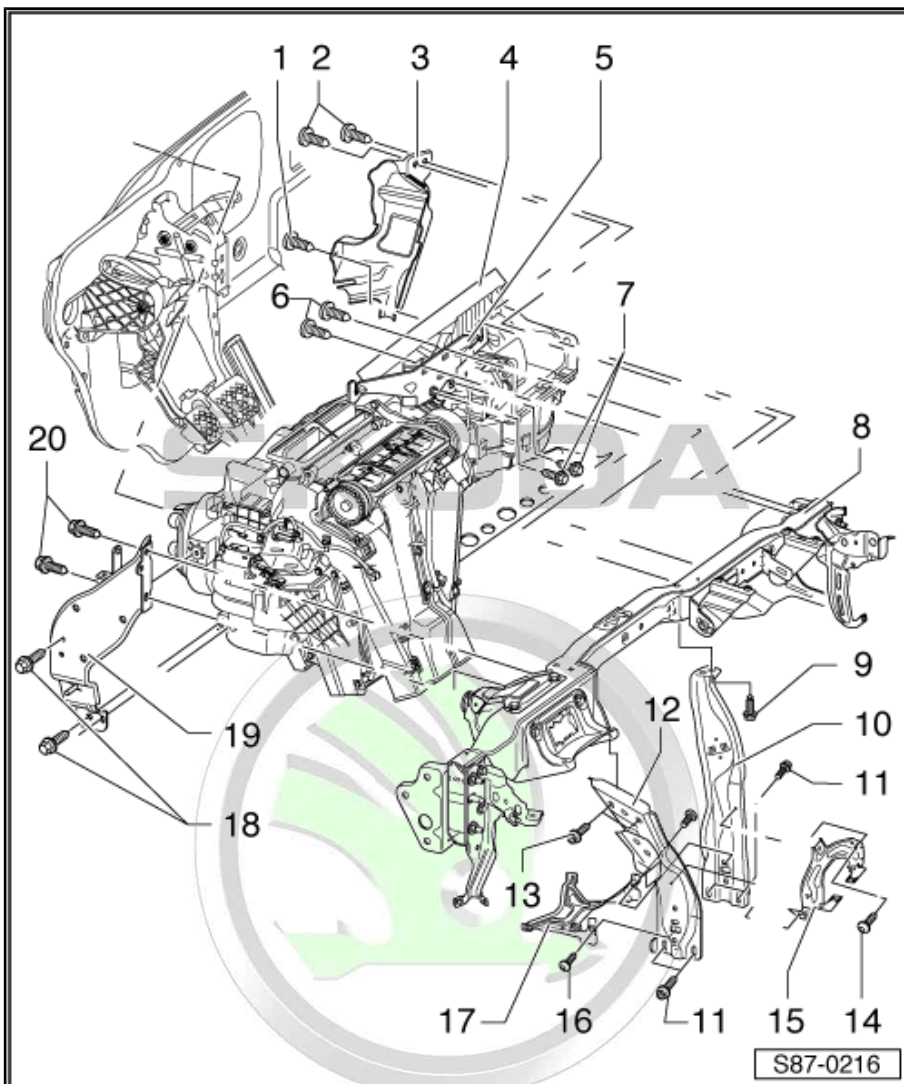
□ 2 pieces

3 - Cable strap

4 - Air Conditioning

□ Removing:

- Remove footwell vent on driver's side.
- Remove the intermediate pieces for defrost duct and dash panel vents.
- Disconnect the plug connections from the heating and air conditioning unit.
- Remove wiring loom from holder - Pos. 5.
- Release screws - Pos. 6 and 7 - from holder - Pos. 5 -.
- Remove holder - Pos. 5.
- Remove the control unit for data bus diagnostic interface -J533- (attached in the area of the steering column to the bracket - Pos. 19 -) ⇒ Electrical System; Rep. gr. 90 .



- Release screws - Pos. 1 and 2 - from cable clip - Pos. 3 -.



Note

In order to reach the screw - Pos. 1 - the heater unit must be pulled out slightly from the front wall on the driver side.

- Release screws - Pos. 18 and 20 - and remove from holder - Pos. 19 -.

Vehicles up to CW 44.08:

- Remove holder - Pos. 15 and 17.
- Remove supports - Pos. 10 and 12.

Vehicles as of CW 45.08 (MY 09 Facelift):

- Remove the central pipe/dash panel - Pos. 8 ⇒ Body Work; Rep. gr. 70 .

All vehicles:

- Remove the heating and air conditioning unit.

□ Installing:

Installation is performed in the reverse order, pay attention to the following points:

- First of all install the seal to the front wall from the passenger compartment and then guide the heat exchanger flange and the refrigerant connection through the seal ⇒ [page 86](#) .
- Pay attention to the fitting position of the seal ⇒ [page 87](#) .
- Attach the refrigerant lines to the expansion valve ⇒ [page 79](#) .
- Top up coolant ⇒ Engine; Rep. gr. 19 .
- Fill the refrigerant circuit with the aid of the A/C service station.

5 - Bracket, right

6 - Screws, 8 Nm

7 - Screws, 8 Nm

8 - Module carrier

9 - Screws, 8 Nm

10 - Right support

- ❑ As of CW 45.08 welded to the central pipe Pos. 8

11 - Screws, 20 Nm

12 - Left support

- ❑ As of CW 45.08 welded to the central pipe Pos. 8

13 - Screws, 8 Nm

14 - Screws, 8 Nm

15 - Support

- ❑ As of CW 45.08 welded to supports Pos. 10 and Pos. 12

16 - Screws, 2 Nm

17 - Support

18 - Screws, 8 Nm

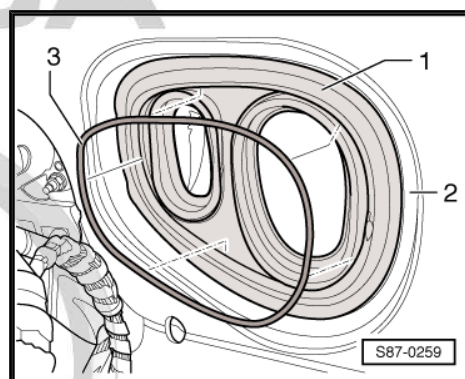
19 - Bracket, left

20 - Screws, 8 Nm

Install seal

- Insert the seal -1- from the passenger compartment into the front wall -2-.

Pay attention to the correct positioning of the reinforcement (wire hanger) -3- in the seal -1-.

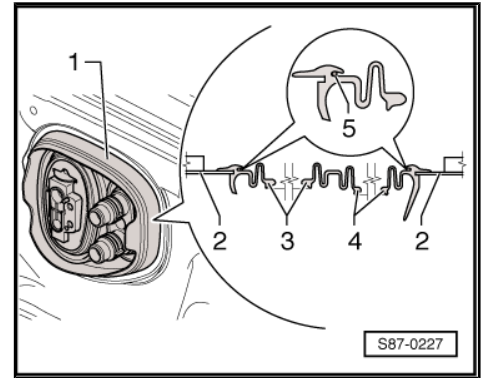


Seal of heating and air conditioning unit/engine compartment



Pay attention to the fitting position of the seal -1-.

- 1 - Seal - it must be placed all around in the front wall
- 2 - Front wall
- 3 - Wulst - it must be placed all around in the groove of the heating and air conditioning unit
- 4 - Bead - it must be placed all around in the groove of the heat exchanger flange
- 5 - Reinforcement (wire hanger) - it must be placed all around in the groove of the seal



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7 Climatic, air conditioning system with manual control



Note

- ◆ *As of CW 46.10, the temperature in the vehicle interior is controlled manually. As of this date, some temperature senders are no longer fitted (see below).*
- ◆ *At first glance, the manual air-conditioning unit of the semi-automatic air conditioning system can be identified on its operating unit for air conditioning system, which has no numerical value of the set interior temperature.*
- ◆ *Detailed description of the function of the air conditioning system ➔ Owner's manual Octavia II (depending on the model year).*

⇒ „7.1 Summary of components“, page 88

⇒ „7.2 Overview of control motors at the heating and air conditioning unit - right-hand drive“, page 91

⇒ „7.3 Removing and installing heating and air conditioning system control with control unit for air conditioner/Climatic J301 up to MY 08 (CW 44.08)“, page 91

⇒ „7.4 Removing and installing heating and air conditioning system control with control unit for air conditioner/Climatic J301 as of MY 09 (CW 45.08)“, page 92

⇒ „7.5 Plug connections at the control for heating and air conditioning system“, page 93

⇒ „7.6 Disassembling and assembling the heating and air conditioning unit (Climatic, air conditioning system with manual control)“, page 94

⇒ „7.7 Removing and installing evaporator“, page 95

⇒ „7.8 Removing and installing, testing condensation water drain“, page 96

⇒ „7.9 Removing and installing the control motor of temperature flap V68“, page 97

⇒ „7.10 Removing and installing the Footwell vent temperature sender G192“, page 99

⇒ „7.11 Removing and installing the middle vent temperature sender G191“, page 99

⇒ „7.12 Removing and installing the evaporator vent temperature sender G263“, page 100

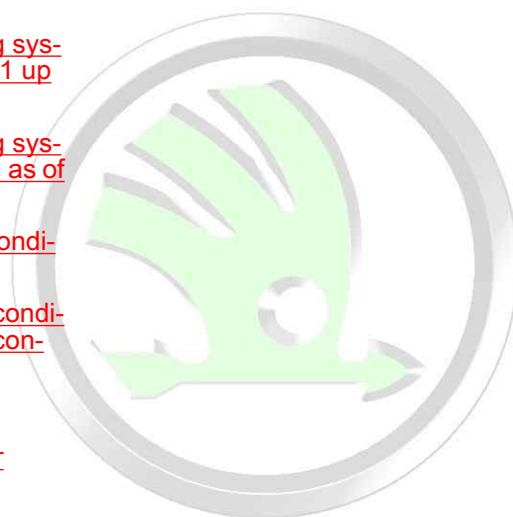
7.1 Summary of components



Note

Summary of components - Control motors on right-hand drive vehicles ⇒ [page 91](#).

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1 - Dash panel

- ❑ Removing and installing
⇒ Body Work; Rep. gr. 70

2 - Centre vent

- ❑ removing and installing
⇒ [page 5](#)

3 - Outer dash panel vent

- ❑ removing and installing
⇒ [page 5](#)

4 - Re-circulating air flap control motor -V113-

- ❑ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ❑ removing and installing
⇒ [page 14](#)

5 - Footwell vent front passenger side

- ❑ removing and installing
⇒ [page 7](#)

6 - Flex shaft

- ❑ for positioning unit for air distribution flaps
- ❑ removing and installing
⇒ [page 10](#)
- ❑ no longer fitted as of MY 09 (CW 45.08)

7 - Series resistor for fresh air blower with overheating fuse - N24-

- ❑ removing and installing
⇒ [page 13](#)

8 - Fresh air blower -V2-

- ❑ removing and installing ⇒ [page 13](#)

9 - Shield for heating and air conditioning unit

- ❑ removing and installing ⇒ [page 1](#)

10 - Evaporator vent temperature sender -G263-

- ❑ removing and installing ⇒ [page 100](#)

11 - Dust and pollen filter

- ❑ removing and installing ⇒ [page 14](#)

12 - Rear duct of right footwell

- ❑ removing and installing ⇒ [page 6](#)

13 - Center rear duct

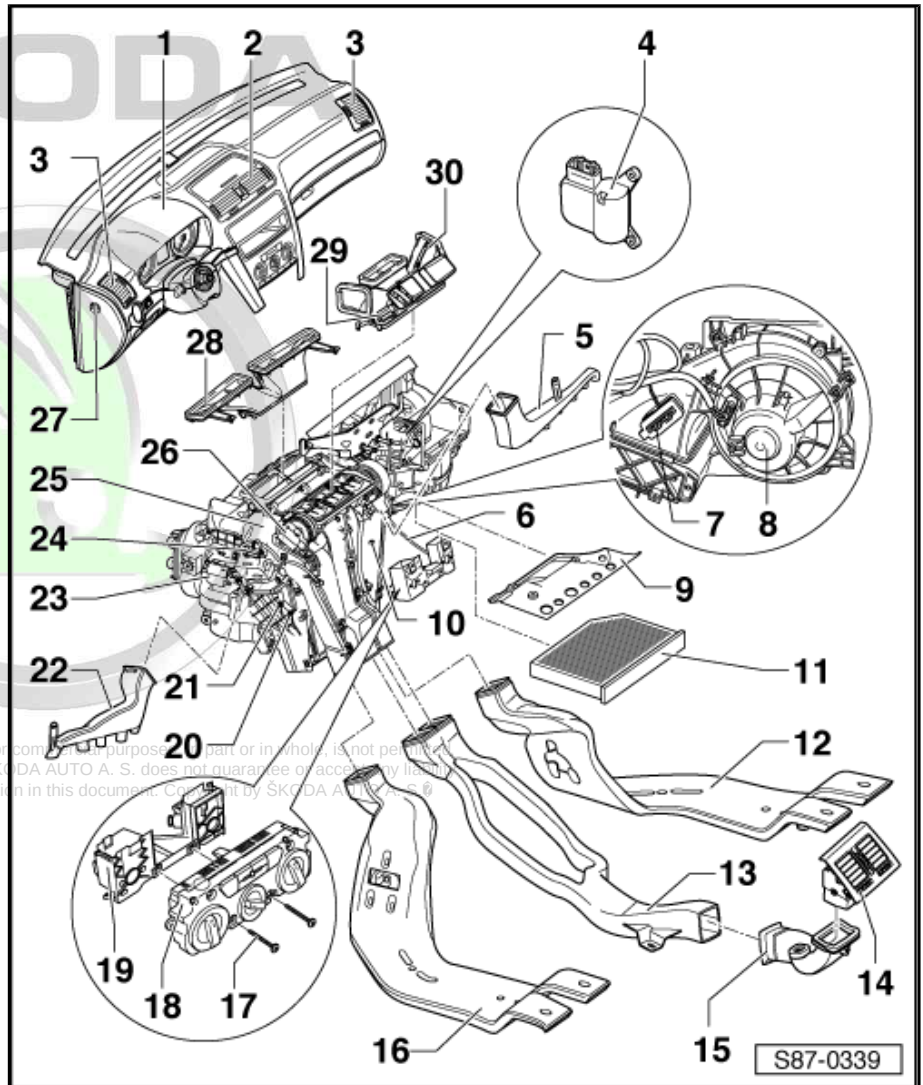
- ❑ Removing and installing ⇒ Body Work; Rep. gr. 68

14 - Center rear vent

- ❑ removing and installing ⇒ [page 6](#)

15 - Air deflector

- ❑ for center rear vent





16 - Rear duct of left footwell

- ☐ removing and installing ➔ [page 6](#)

17 - Screws, 1.5 Nm

- ☐ up to MY 08 (CW 44.08) 8 pieces
- ☐ as of MY 09 (CW 45.08): 4 pieces

18 - Control for heating and air conditioning system

- ☐ removing and installing ➔ [page 91](#)

19 - Adapter for heater control

- ☐ no longer fitted as of MY 09 (CW 45.08)

20 - Heating element for air auxiliary heating -Z35-

- ☐ removing and installing ➔ [page 19](#)

21 - Heat exchanger

- ☐ removing and installing ➔ [page 15](#)
- ☐ replace coolant after changing the heat exchanger

22 - Footwell vent driver's side

- ☐ removing and installing ➔ [page 7](#)

23 - Control motor for temperature flap -V68-

- ☐ inspect ➔ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ➔ [page 97](#)

24 - Footwell vent temperature sender -G192-

- ☐ no longer fitted as of CW 46.2010
- ☐ inspect ➔ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ➔ [page 99](#)

25 - Heating and air conditioning unit

- ☐ removing and installing ➔ [page 83](#)
- ☐ disassembling and assembling ➔ [page 94](#)

26 - Positioning motor of front air distribution -V145-

- ☐ the removal and installation is the same for the central flap control motor -V70- ➔ [page 119](#)
- ☐ Vehicles as of MY 09 (CW 45.08)

27 - Vent duct

- ☐ for window blower in the door
- ☐ Part of the cover

28 - Intermediate piece for defroster duct

- ☐ placed onto the distributor housing and secured with a clip on the cross member - dash panel
- ☐ for removing, take out dash panel

29 - Middle vent temperature sender -G191-

- ☐ no longer fitted as of CW 46.2010
- ☐ inspect ➔ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ➔ [page 99](#)

30 - Intermediate piece for dash panel vents

- ☐ placed onto the distributor housing
- ☐ for removing, take out dash panel

7.2 Overview of control motors at the heating and air conditioning unit - right-hand drive

1 - Re-circulating air flap control motor -V113-

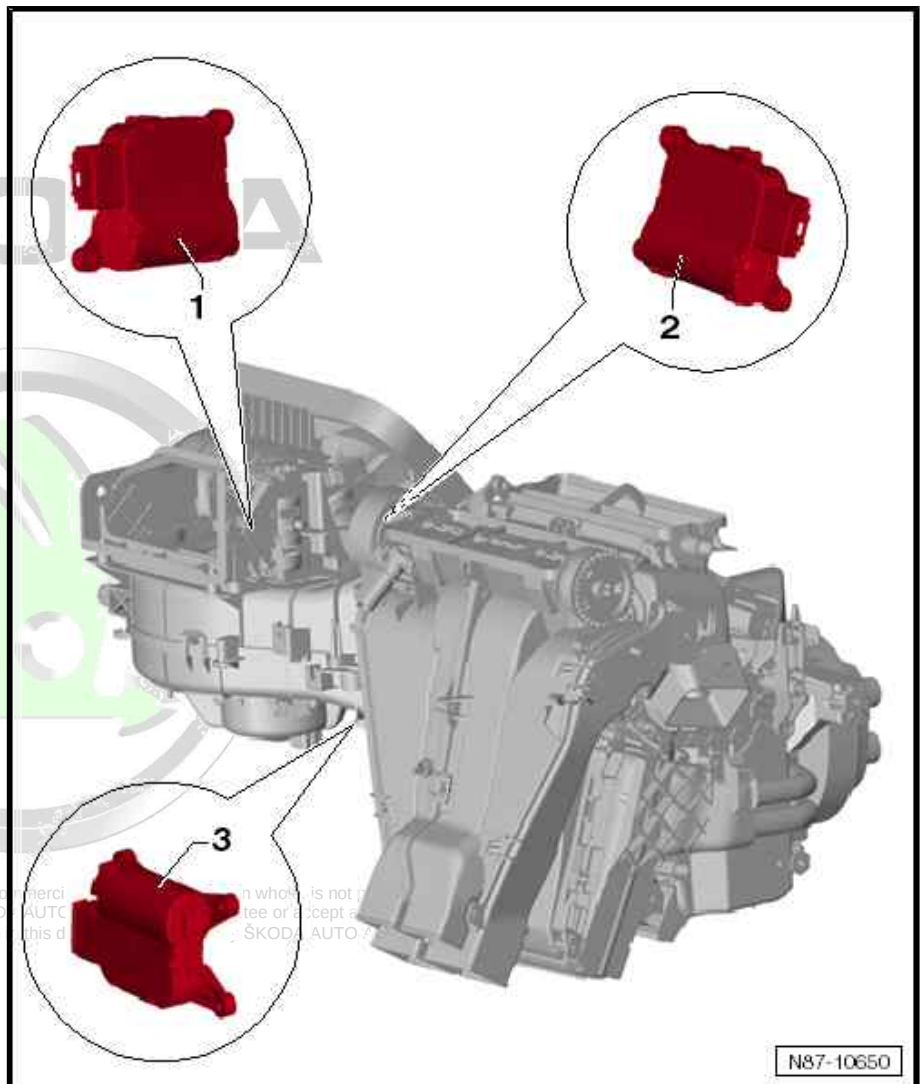
- ❑ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ❑ removing and installing ⇒ [page 14](#)

2 - Positioning motor of front air distribution -V145-

- ❑ the removal and installation is the same for the central flap control motor -V70- ⇒ [page 119](#)

3 - Control motor for temperature flap -V68-

- ❑ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ❑ removing and installing ⇒ [page 97](#)



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N87-10650

7.3 Removing and installing heating and air conditioning system control with control unit for air conditioner/Climatic -J301- up to MY 08 (CW 44.08)

Removing



Note

- ◆ The heater control consists of two separate housings. Before removing the heater control, bring the rotary knobs into the following position:
- ◆ Heat regulator to „cold“
- ◆ Blower to „0“
- ◆ Direction of vent to „footwell“

- Switch off the ignition and all electrical components.
- Vehicles with mobile phone holder - slacken mobile phone holder ➔ Electrical System; Rep. gr. 91 .
- Carefully lever out the covering -1- using the disassembly wedge -3409- .
- Screw out screws -3- (1.5 Nm) and remove the heater control -2- from the dash panel.
- Disconnect plug.

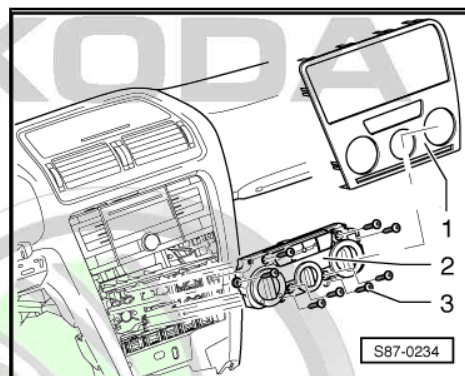
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ *The rotary knobs must be in the same position as for the removal.*
- ◆ *Check the function of the control unit for air conditioner/Climatic -J301- after the installation.*
- ◆ *When replacing, carry out the function „Initiate basic setting“ with the ➔ Vehicle diagnostic tester.*



7.4 Removing and installing heating and air conditioning system control with control unit for air conditioner/Climatic -J301- as of MY 09 (CW 45.08)

Removing

- Switch off the ignition and all electrical components.
- Vehicles with mobile phone holder - slacken mobile phone holder ➔ Electrical System; Rep. gr. 91 .
- Carefully lever out the covering -1- using the disassembly wedge -3409- .
- Screw out screws -3- (1.5 Nm) and remove the heater control -2- from the dash panel.
- Disconnect plug.

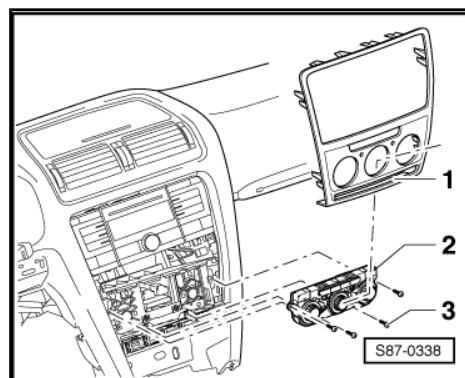
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ *Check the function of the control unit for air conditioner/Climatic -J301- after the installation.*
- ◆ *When replacing, carry out the function „Initiate basic setting“ with the ➔ Vehicle diagnostic tester.*
- ◆ *If the button **AC** does no longer function after replacing the control unit for air conditioner/Climatic -J301- , carry out the function of the „AC compressor inlet“ with the ➔ Vehicle diagnostic tester in the targeted fault finding.*



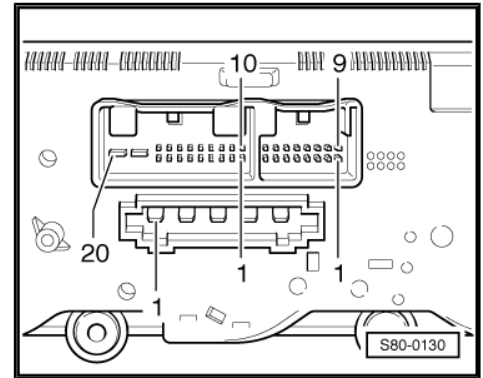
7.5 Plug connections at the control for heating and air conditioning system

Contact assignment of multipin plug connections on the rear side of the control for heating and air conditioning system

Special tools and workshop equipment required

◆ Test box -V.A.G 1598/47-

Vehicles up to MY 08 (CW 44.08)



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Vehicles as of MY 09 (CW 45.08)

20-pin plug connection

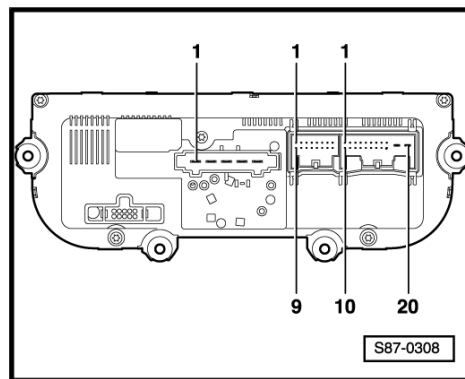
- 3 - Middle vent temperature sender -G191-
- 5 - High-pressure sender -G65-
- 7 - CAN bus Low (comfort)
- 8 - CAN bus High (comfort)
- 12 - Right seat heating (optional)
- 13 - Left seat heating (optional)
- 15 - Terminal 75 seat heating (optional)
- 16 - Regulating valve for compressor of air conditioning system - N280-
- 18 - Middle vent temperature sender -G191-
- 19 - Terminal 30A
- 20 - Terminal 31

16-pin plug connection

- 1 - Control motor for temperature flap -V68-
- 2 - Evaporator vent temperature sender -G263-
- 3 - Potentiometer - central flap control motor -V70- (vehicles as of MY 09)
- 4 - Footwell vent temperature sender -G192-
- 5 - Potentiometer for temperature flap control motor -G92-
- 7 - + 5°V for potentiometer for temperature flap control motor - G92-
- 8 - Ground for sender
- 9 - Re-circulating air flap control motor -V113-
- 10 - Re-circulating air flap control motor -V113-
- 11 - Control motor for temperature flap -V68-
- 12 - Central flap control motor -V70- (vehicles as of MY 09)
- 13 - Central flap control motor -V70- (vehicles as of MY 09)

5-pin plug connection

- 1 - 3. Blower stage
- 2 - 2. Blower stage
- 3 - 1. Blower stage
- 4 - 4. Blower stage
- 5 - Terminal 75



7.6 Disassembling and assembling the heating and air conditioning unit (Climatic, air conditioning system with manual control)



Note

Summary of components - Control motors on right-hand drive vehicles ⇒ [page 91](#) .

1 - Control motor for temperature flap -V68-

- ☐ removing and installing
⇒ [page 97](#)

2 - Support

3 - Cover

4 - Re-circulating air flap control motor -V113-

- ☐ removing and installing
⇒ [page 14](#)

5 - Housing for air inlet

- ☐ with re-circulating air flap

6 - Housing - top part

7 - Housing - bottom part

8 - Evaporator

- ☐ removing and installing
⇒ [page 95](#)

9 - Hose for glove compartment cooling

- ☐ not mounted as of CW 46.10

10 - Series resistor for fresh air blower with overheating fuse - N24-

- ☐ removing and installing
⇒ [page 13](#)

11 - Fresh air blower -V2-

- ☐ removing and installing
⇒ [page 13](#)

12 - Dust and pollen filter

- ☐ removing and installing ⇒ [page 14](#)

13 - Cover

- ☐ for dust and pollen filter

14 - Heat exchanger

- ☐ removing and installing ⇒ [page 15](#)

15 - Heat exchanger trim panel

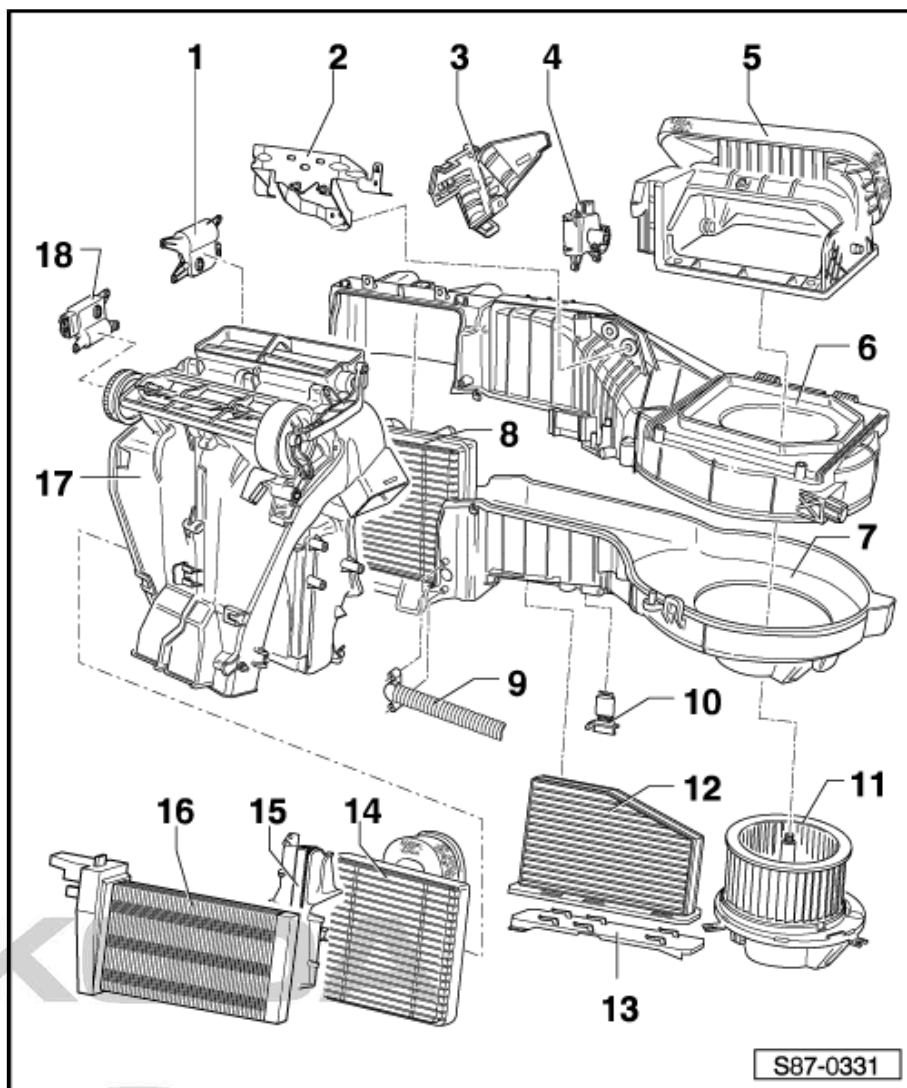
16 - Heating element for air auxiliary heating -Z35-

- ☐ only fitted on certain models
- ☐ removing and installing ⇒ [page 19](#)

17 - Distributor housing

18 - Positioning motor of front air distribution -V145-

- ☐ the removal and installation is the same for the central flap control motor -V70- ⇒ [page 119](#)
- ☐ as of MY 09 (CW 45.08)



7.7 Removing and installing evaporator

Removing

- Remove heating and air conditioning unit ⇒ [page 83](#) .

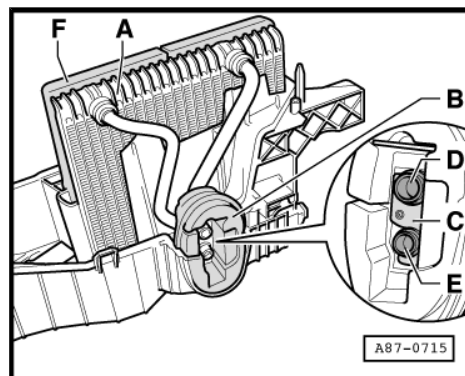
- Disassemble heating and air conditioning unit ➔ [page 94](#) , vehicles with Climatronic ➔ [page 110](#) .
- Remove evaporator -A- from the evaporator housing bottom part.

Install



Note

- ◆ *Before inserting the evaporator, check the condensation water drain and the evaporator housing, if necessary clean (if required also the evaporator).*
- ◆ *Check seal -F- (it must be sealed all around).*
- Fit holder -C- and seal/insulation -B- onto the pipe connections of the evaporator -D- and -E-.
- Insert evaporator -A- into the evaporator housing bottom part as shown in the fig.
- When inserting the evaporator -A- into the evaporator housing bottom part and when assembling both housing parts, ensure that the seal -F- is not damaged.

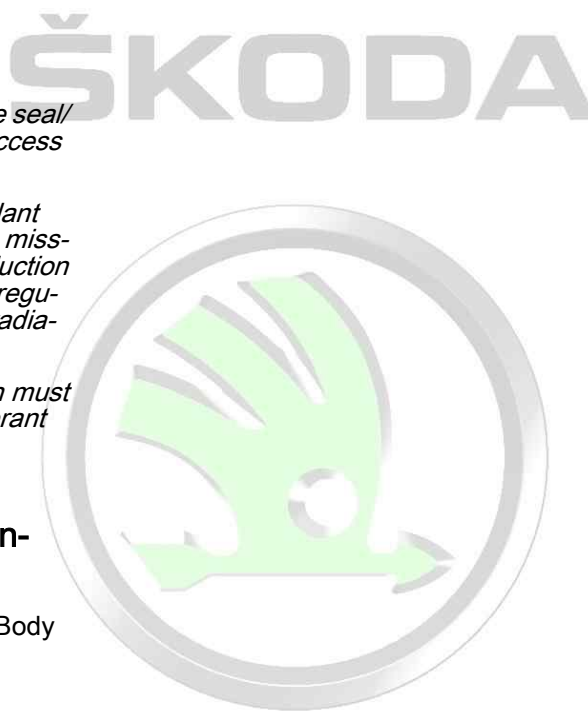


Note

- ◆ *After assembling the housing halves, make sure that the seal/insulation -B- is correctly fitted in the opening for the access to both coolant pipes.*
- ◆ *Check that the holder -C- is correctly fitted on both coolant pipes -D- and -E-. If the heat-protection insulation -B- is missing or not correctly installed, it may result in a power reduction of the air conditioning system (tuning modification of the regulator characteristic of the expansion valve due to heat radiation).*
- ◆ *There is refrigerant oil in the removed evaporator which must be guided back with the new evaporator into the refrigerant circuit ➔ [page 67](#) .*

7.8 Removing and installing, testing condensation water drain

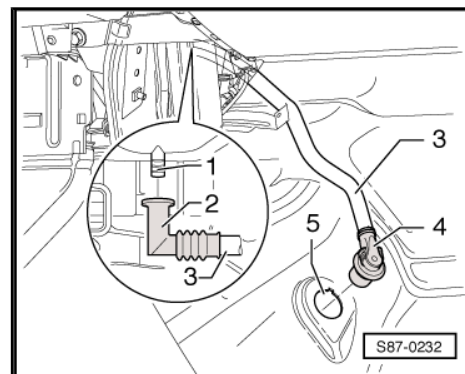
- Remove the side cover on the front passenger side ➔ Body Work; Rep. gr. 68 .



- Fold back the floor covering until the condensation water drain -4- is visible.
- Cover the area below the opening -1- with absorbant paper.
- Carefully pull off the connection angle -2- from the heating and air conditioning unit -1- and the connection -4- from the opening -5-.
- Check the condensation water drain -1- and -4- for contamination; e.g. with a piece of wire.

i Note

- ◆ *The connecting pieces -2- and -4- must fit tightly on the pipe -3-.*
- ◆ *When installing pay attention to the correct positioning of the connecting pieces -2- and -4- in the areas -1- and -5- (torsion stop).*



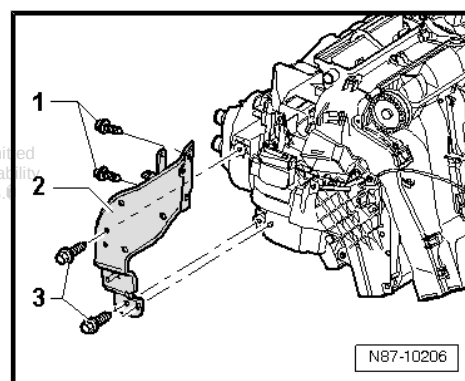
7.9 Removing and installing the control motor of temperature flap -V68-

7.9.1 Left-hand drive

Removing

- Switch off the ignition and all electrical components.
- Remove lower part of the dash panel insert on the driver's side ⇒ Body Work; Rep. gr. 70 .
- Remove left footwell vent ⇒ [page 7](#) .
- Remove the control unit for data bus diagnostic interface - J533- (attached in the area of the steering column to the bracket) ⇒ Electrical System; Rep. gr. 97 .
- Release screws - 3 - (10 Nm).

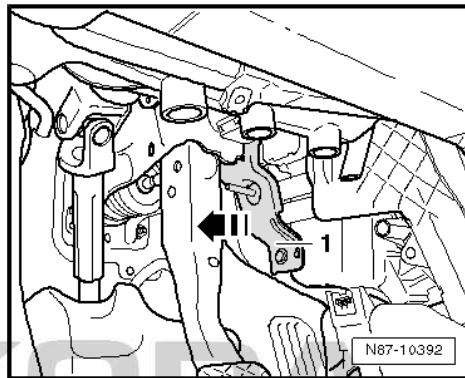
The screws -1- are not released.



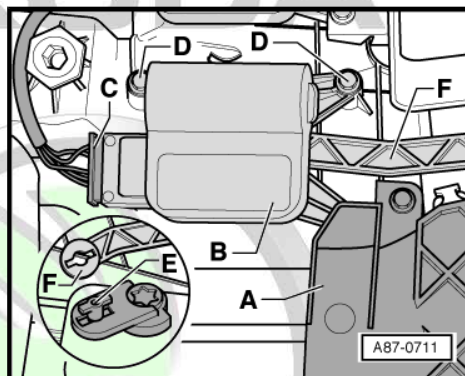
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- Press the bracket -1- in the direction of the brake pedal -arrow- and fasten it there with the cable strap.



- Mark the connector -C- (the design is identical to other connectors, danger of mix-ups) and subsequently remove it at the left temperature flap control motor -V158- -B-.
- Removing cover -A-.
- Release the fixing screws -D- (1.4 Nm) and remove the control motor -B-.
- Slacken the lever -E- of the control motor from the coupling rod -F-.



Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ After installing the control motor, it is necessary to test the operation of the temperature flap.
- ◆ Carry out the function „Initiate basic setting“ with the Vehicle diagnosis, measurement and information system -VAS 5051-.

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7.9.2 Right-hand drive

Removing

- Switch off the ignition and all electrical components.
- Remove storage compartment on passenger side ⇒ Body Work; Rep. gr. 70 .
- Remove left footwell vent ⇒ [page 7](#) .
- Disconnect the plug connection at the control motor.

- Unscrew screw -1- (1.4 Nm) and unhook the control motor from the catch -arrow-.
- Slightly turn the control motor and unhook it from the control cable of the temperature flap.

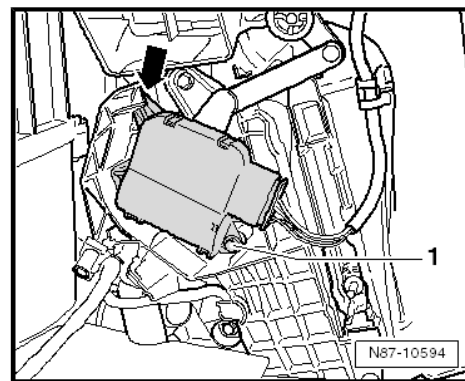
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ After installing the control motor, it is necessary to test the operation of the temperature flap.
- ◆ Carry out the function „Initiate basic setting“ with the Vehicle diagnosis, measurement and information system -VAS 5051-.



7.10 Removing and installing the Footwell vent temperature sender -G192-



Note

Is not mounted as of CW 46.2010.

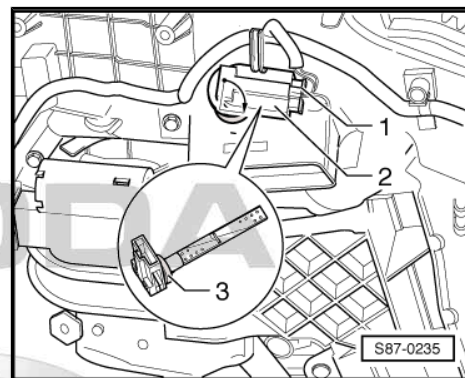
Removing

- Switch off the ignition and all electrical components.
- Remove left footwell vent ⇒ [page 7](#) .
- Rotate footwell vent temperature sender -G192- -2- by 90° and remove from housing.
- Unplug connector -1-.

Install

Installation is carried out in the reverse order.

When installing, pay attention to the correct seating of the gasket ring -3-.



7.11 Removing and installing the middle vent temperature sender -G191 -



Note

Is not mounted as of CW 46.2010.

Removing

- Removing the dash panel ⇒ Body Work; Rep. gr. 70 .

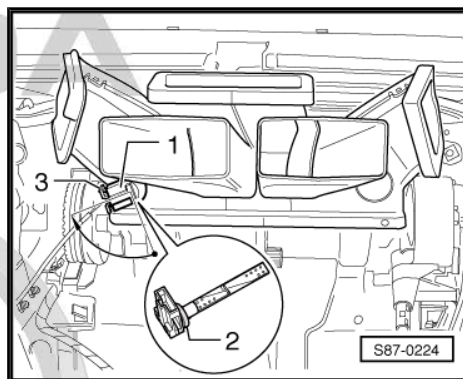


- Unplug connector -3-.
- Rotate middle vent temperature sender -G191- -1- by 90° and remove from housing.

Install

Installation is carried out in the reverse order.

When installing, pay attention to the correct seating of the gasket ring -2-.



7.12 Removing and installing the evaporator vent temperature sender - G263-

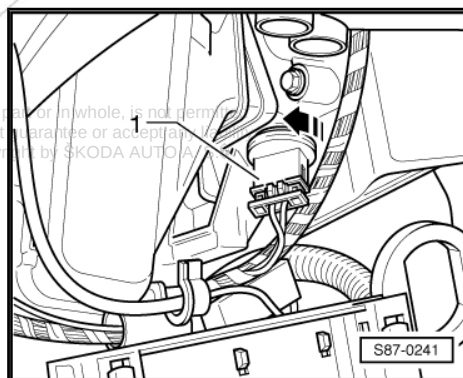
Removing

- Remove the side cover of the centre console on the front passenger side ⇒ Body Work; Rep. gr. 68 .
- Disconnect plug at evaporator vent temperature sender - G263- -1-.
- Turn evaporator vent temperature sender -G263- 90° and pull out.

Install

Installation is carried out in the reverse order.

When installing, pay attention to the correct seating of the gasket ring.



8 Climatronic - Air conditioner with automatic regulation)



Note

Detailed description of function ⇒ Owner's manual Octavia II .

⇒ „8.1 Summary of components“, page 101

⇒ „8.2 Overview of control motors at the heating and air conditioning unit - right-hand drive“, page 105

⇒ „8.3 Function of the Control and display unit for air conditioner/ Climatronic E87 with Climatronic control unit J255 up to MY 08 (CW 44.08)“, page 105

⇒ „8.4 Function of the Control and display unit for air conditioner/ Climatronic E87 with Climatronic control unit J255 as of MY 09 (CW 45.08)“, page 107

⇒ „8.5 Removing and installing Control and display unit for air conditioner, Climatronic E87 with Climatronic control unit J255 “, page 108

⇒ „8.6 Plug connections on the control unit for Climatronic J255 “, page 109

⇒ „8.7 Disassembling and assembling heating and air conditioning unit (Climatronic)“, page 110

⇒ „8.8 Removing and installing left footwell vent temperature sender G261 “, page 112

⇒ „8.9 Removing and installing Right footwell vent temperature sender G262 “, page 112

⇒ „8.10 Removing and installing left vent temperature sender G150 and right vent temperature sender G151 “, page 112

⇒ „8.11 Removing sunlight penetration photosensor G107 and sunlight penetration photosensor 2 G134 “, page 113

⇒ „8.12 Removing and installing the control motor of the re-circulating air flap V113 “, page 113

⇒ „8.13 Remove and install control motor of air flow flap V71 or control motor of air flow flap and re-circulating air flap V71 “, page 114

⇒ „8.14 Removing and installing the defroster flap control motor V107 “, page 115

⇒ „8.15 Removing and installing the left temperature flap control motor V158 “, page 116

⇒ „8.16 Removing and installing right temperature flap control motor V159 “, page 118

⇒ „8.17 Removing and installing the control motor of central flap V70 “, page 119

⇒ „8.19 Air quality sensor G238 “, page 120

8.1 Summary of components



Note

Summary of components - Control motors on right-hand drive vehicles ⇒ page 105 .



1 - Dash panel

- ❑ Removing and installing
⇒ Body Work; Rep. gr. 70

2 - Sunlight penetration photo-sensor -G107- and Sunlight penetration photosensor 2 - G134-

- ❑ fitted together in one housing
- ❑ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ❑ Function: Depending on the intensity of the sunlight controls the left and right temperature flap and the fresh air blower
- ❑ Emergency operation in the event of failure: Climatronic control unit - J255- adopts fixed value
- ❑ removing and installing
⇒ [page 113](#)

3 - Air quality sensor -G238-

- ❑ mounted as of CW 22.09
- ❑ Description, removing and installing
⇒ [page 120](#)

4 - Air intake grid

- ❑ removing and installing
⇒ [page 8](#)

5 - Centre vent

- ❑ removing and installing ⇒ [page 5](#)

6 - Outer dash panel vent

- ❑ removing and installing ⇒ [page 5](#)

7 - Footwell vent front passenger side

- ❑ removing and installing ⇒ [page 7](#)

8 - Shield for heating and air conditioning unit

- ❑ removing and installing ⇒ [page 1](#)

9 - Dust and pollen filter

- ❑ removing and installing ⇒ [page 14](#)

10 - Rear duct of right footwell

- ❑ removing and installing ⇒ [page 6](#)

11 - Center rear duct

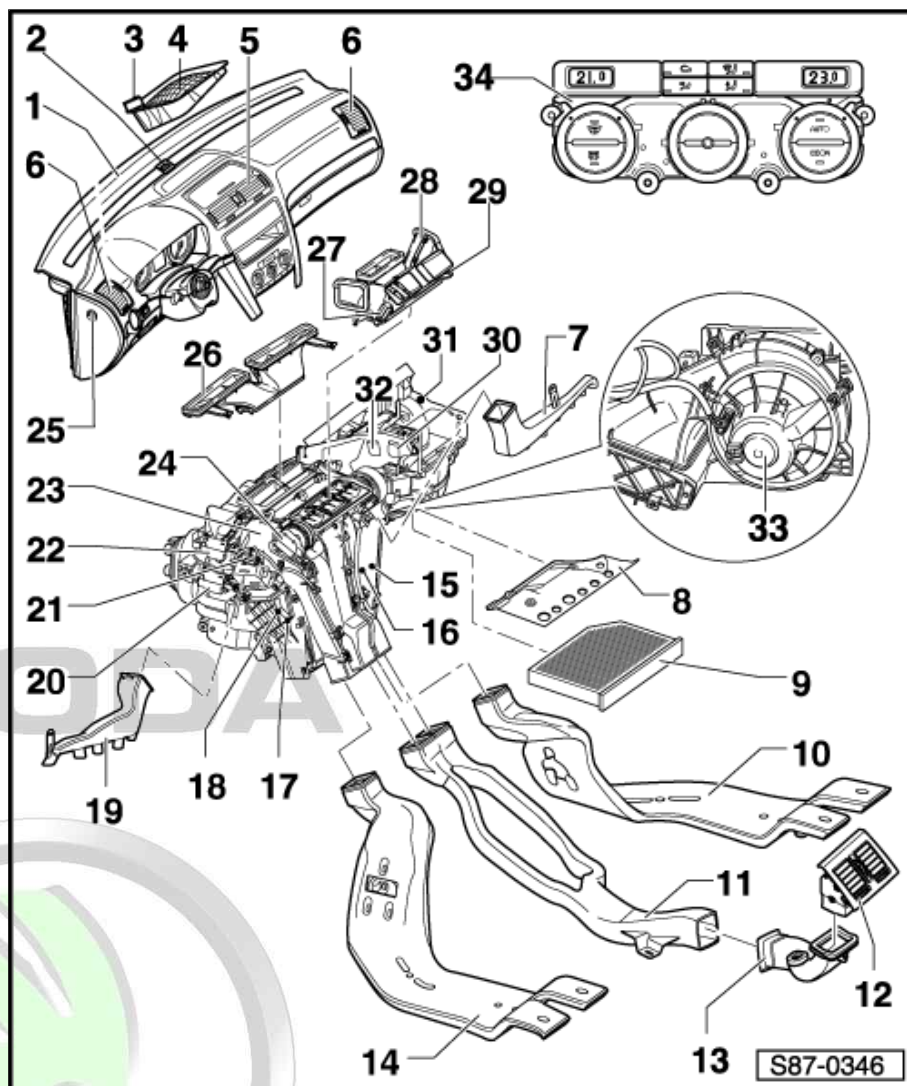
- ❑ Removing and installing ⇒ Body Work; Rep. gr. 68

12 - Center rear vent

- ❑ removing and installing ⇒ [page 6](#)

13 - Air deflector

- ❑ for center rear vent



14 - Rear duct of left footwell

- ☐ removing and installing ➤ [page 6](#)

15 - Evaporator vent temperature sender -G263-

- ☐ removing and installing ➤ [page 100](#)

16 - Right temperature flap control motor -V159-

- ☐ inspect ➤ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ➤ [page 118](#)

17 - Heating element for air auxiliary heating -Z35-

- ☐ removing and installing ➤ [page 19](#)

18 - Heat exchanger

- ☐ removing and installing ➤ [page 15](#)
- ☐ replace coolant after changing the heat exchanger

19 - Footwell vent driver's side

- ☐ removing and installing ➤ [page 7](#)

20 - Left temperature flap control motor -V158-

- ☐ inspect ➤ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ➤ [page 116](#)

21 - Left footwell vent temperature sender -G261-

- ☐ inspect ➤ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ➤ [page 112](#)

22 - Defroster flap control motor -V107-

- ☐ inspect ➤ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ➤ [page 115](#)

23 - Heating and air conditioning unit

- ☐ removing and installing ➤ [page 83](#)
- ☐ disassembling and assembling ➤ [page 110](#)

24 - Control motor of centre flap -V70-

- ☐ inspect ➤ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ➤ [page 119](#)

25 - Vent duct

- ☐ for window blower in the door
- ☐ Part of the cover

26 - Intermediate piece for defroster duct

- ☐ placed onto the distributor housing and secured with a clip on the cross member - dash panel
- ☐ for removing, take out dash panel

27 - Left vent temperature sender -G150-

- ☐ inspect ➤ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ➤ [page 112](#)

28 - Intermediate piece for dash panel vents

- ☐ placed onto the distributor housing
- ☐ for removing, take out dash panel

29 - Right vent temperature sender -G151-

- ☐ inspect ➤ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ➤ [page 112](#)

30 - Re-circulating air flap control motor -V113-

- ☐ mounted up to 05.07. As of 06.07, its function is replaced by the control motor of air flow flap and re-circulating air flap -V71-



- ☐ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ⇒ [page 113](#)

31 - Fresh air intake duct temperature sensor -G89-

- ☐ only on vehicles manufactured up to 05.05.
- ☐ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ Function: The temperature sensor controls the temperature flap and the fresh air blower according to the temperature
- ☐ In case of signal failure, the value from the ambient temperature sensor -G17- is used.
- ☐ to disassemble, remove dash panel, turn temperature sensor by 90°, remove and disconnect plug connection

32 - Vehicles up to 05.07: air flow flap control motor -V71- , vehicles as of 06.07: air flow flap control motor and re-circulating air flap -V71-

- ☐ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ⇒ [page 114](#)

33 - Fresh air blower -V2- with fresh air blower control unit -J126-

- ☐ Removing and installing fresh air blower ⇒ [page 13](#)
- ☐ the control unit cannot be replaced individually

34 - Climatronic control unit -J255-

- ☐ The Climatronic control unit -J255 - and the Control and display unit for air conditioner, Climatronic -E87- cannot be disassembled
- ☐ as of MY 09, different arrangement of actuating elements and displays
- ☐ Description of the function ⇒ [page 101](#)
- ☐ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ⇒ [page 108](#)

8.2 Overview of control motors at the heating and air conditioning unit - right-hand drive

1 - Control motor of air flow flap and re-circulating air flap -V71-

- ☐ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ⇒ [page 114](#)

2 - Control motor of centre flap -V70-

- ☐ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ⇒ [page 119](#)

3 - Defroster flap control motor -V107-

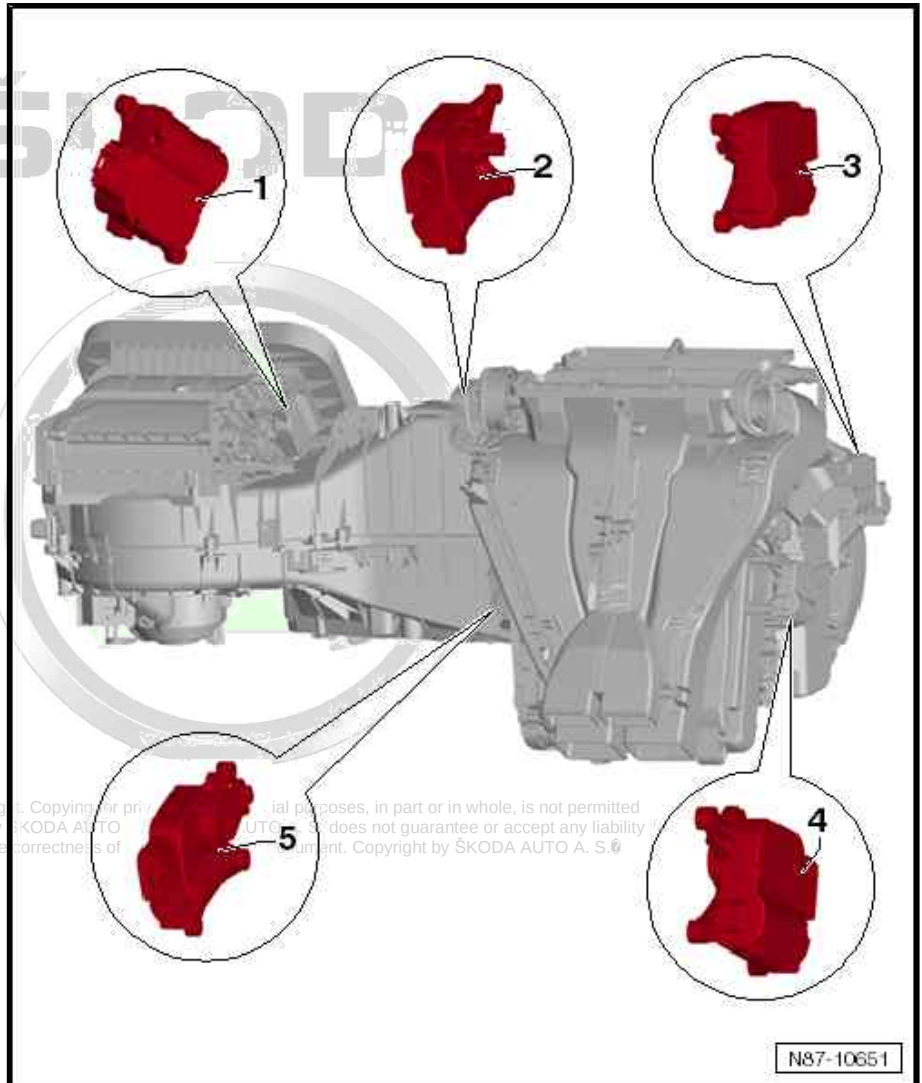
- ☐ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ⇒ [page 115](#)

4 - Right temperature flap control motor -V159-

- ☐ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ⇒ [page 118](#)

5 - Left temperature flap control motor -V158-

- ☐ inspect ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“
- ☐ removing and installing ⇒ [page 116](#)



8.3 Function of the Control and display unit for air conditioner/Climatronic -E87- with Climatronic control unit -J255- up to MY 08 (CW 44.08)



Note

- ◆ By pressing the **AUTO** button all deviating settings from automatic operation are cancelled.
- ◆ Detailed description of the function of the air conditioning system ⇒ Owner's manual Octavia II (depending on the model year).



1 - Display of the selected interior temperature, left

2 - Button for re-circulating air mode

- ❑ The re-circulating air mode is switched on by pressing the button, thus preventing contaminated outside air from penetrating into the passenger compartment.

3 - Button - centre air distribution

4 - Button - bottom air distribution

5 - Button - top air distribution

6 - Display of the selected interior temperature, right

7 - Button for defrosting the windscreen

8 - Button for rear window heating

9 - Rotary knob for interior temperature, left

10 - Blower regulator

11 - Interior temperature sensor

12 - Button **ECON**

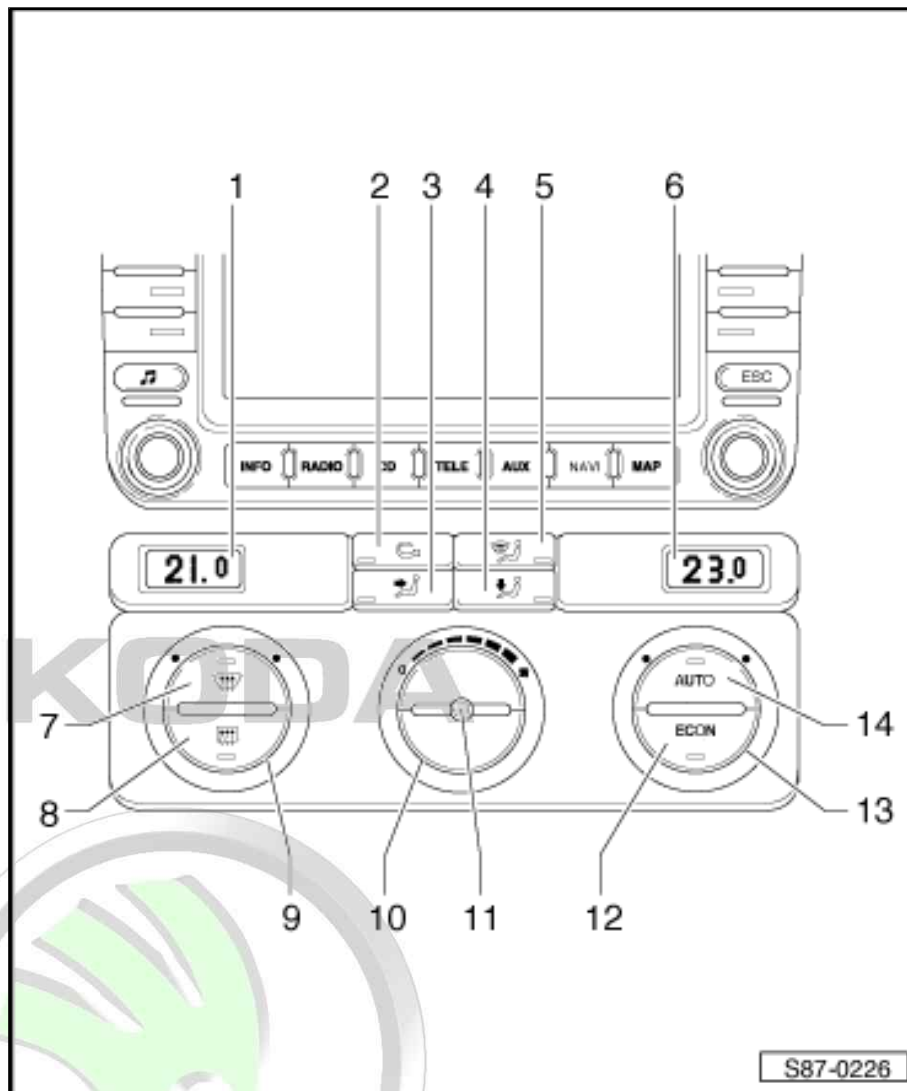
- ❑ By pressing the button **ECON** the AC compressor is adjusted close to zero output. The heating and ventilation operation continues to be controlled electronically.

13 - Rotary knob for interior temperature, right

14 - Button **AUTO**

- ❑ By pressing the button **AUTO** the Climatronic maintains the selected interior temperature for the vehicle fully automatically. To this end the temperature of the expelled air, the blower speed and the air distribution are automatically changed.

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8.4 Function of the Control and display unit for air conditioner/Climatronic -E87- with Climatronic control unit -J255- as of MY 09 (CW 45.08)

1 - Multi-function display of the radio/the navigation

- ☐ Serves as a display for the information by means of the pop-up window.

2 - Button - Upper body air flow

3 - Button - Footwell air flow

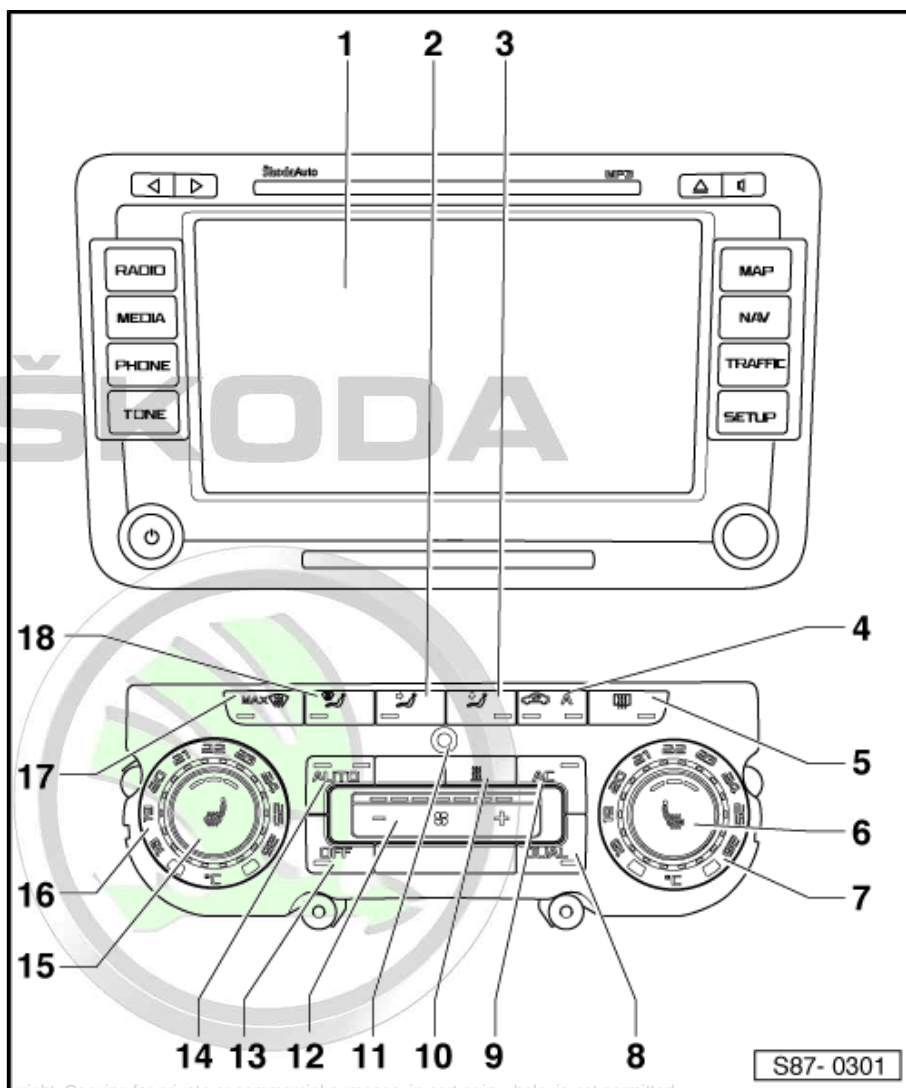
4 - Button - Re-circulating air mode with air quality sensor

- ☐ The Climatronic switches into the re-circulating or automatic re-circulating air mode by pressing the button, thus preventing contaminated outside air from penetrating into the passenger compartment.
- ☐ If the air quality sensor recognizes a considerable increase in the concentration of pollutants while the automatic re-circulating air operation is switched on, then it is temporarily switched to air re-circulating operation.

5 - Button - rear window heating.

6 - Regulator - Adjustment of temperature for the right side

7 - Display of the selected interior temperature, right



8 - Button - Activation and deactivation of the dual mode for the adjustment of temperature **DUAL**

- ☐ If the warning light comes on in the button, the temperature for the left and right side can be set separately.

9 - Button - activation and deactivation of the cooling system **AC**

- ☐ Button for the activation/deactivation of the AC compressor

10 - Button - direct activation (deactivation) of the auxiliary heating

- ☐ Only on vehicles equipped with auxiliary heating.

11 - Interior temperature sensor

12 - Regulator - Setting of the blower speed

13 - Button - Deactivation of the Climatronic

14 - Button - automatic operation **AUTO**

- ☐ By pressing the button **AUTO** the Climatronic maintains the selected interior temperature for the vehicle fully automatically. To this end the temperature of the expelled air, the blower speed and the air distribution are automatically changed.
- ☐ By pressing the button **AUTO** again, the Climatronic switches between „HIGH“ and „LOW“ ⇒ Operating Instruction Octavia II .



15 - Regulator - Adjustment of temperature for the left side

Only on vehicles equipped with driver's seat heating.

16 - Display of the selected interior temperature driver's side, left

17 - Button - intensive de-icing of the windscreen

18 - Button - Air flow to the windows

8.5 Removing and installing Control and display unit for air conditioner, Climatronic -E87- with Climatronic control unit -J255-



Note

- ◆ *The Climatronic control unit -J255- and the Control and display unit for air conditioner/Climatronic -E87- cannot be disassembled.*
- ◆ *As of MY 09 (CW 45.08), different arrangement of actuating elements and displays, the assembly work is identical.*

Removing

- Vehicles with mobile phone holder - slacken mobile phone holder ➔ Electrical System; Rep. gr. 91 .
- Carefully lever out the cover for the radio/navigation and the heater control using a disassembly wedge -3409- .
- Unscrew the screws -2- and remove the control and display unit for air conditioner/Climatronic -E87- -1- from the dash panel.
- Disconnect the plug connections on the control and display unit for air conditioner/Climatronic -E87- .

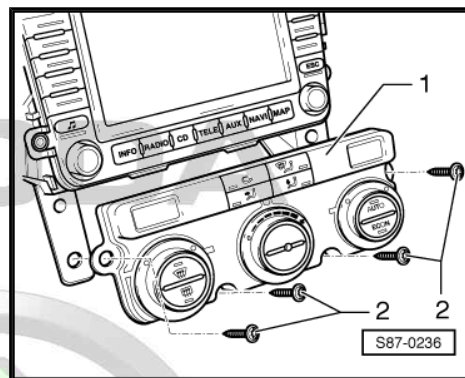
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

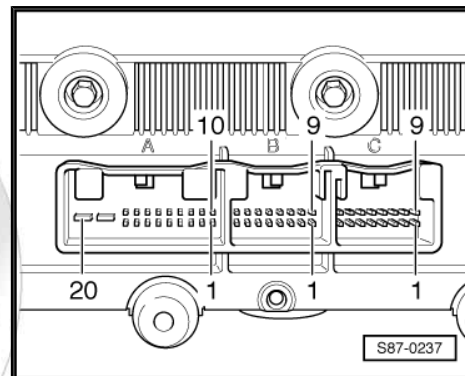
- ◆ *Test the operation of the control and display unit for air conditioner/Climatronic -E87- after the installation.*
- ◆ *Carry out „Initiate basic setting“ with the ➔ Vehicle diagnostic tester.*
- ◆ *If the button **AC** does no longer function after replacing the Climatronic control unit -J255- , carry out the function of the „AC compressor inlet“ with the ➔ Vehicle diagnostic tester in the targeted fault finding.*



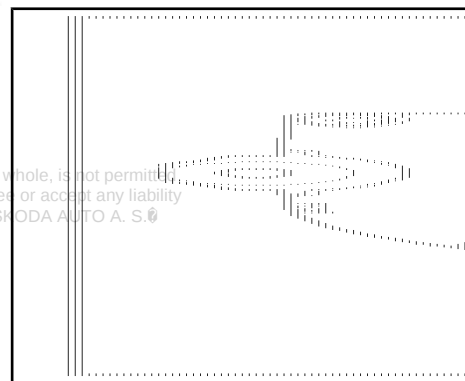
8.6 Plug connections on the control unit for Climatronic -J255-

Contact assignment of multipin plug connections A, B, and C on the rear of the control unit for Climatronic -J255-

Vehicles up to MY 08:



Vehicles as of MY 09:



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Special tools and workshop equipment required

- ◆ Test box -V.A.G 1598/47-

20-pin plug connection -A-

- 1 - Sunlight penetration photosensor 2 -G134- or Sunlight penetration photosensor -G107- , signal
- 2 - High-pressure sender -G65-
- 3 - Sunlight penetration photosensor 2 -G134- or Sunlight penetration photosensor -G107- , signal
- 4 - As of CW 22.09: air quality sensor -G238-
- 5 - CAN bus High (comfort)
- 6 - CAN bus Low (comfort)
- 9 - + 5V for sunlight penetration photosensor 2 -G134- or sunlight penetration photosensor -G107-
- 10 - Left seat heating (optional)
- 11 - Right seat heating (optional)
- 12 - Up to MY 08: terminal 75A, no longer applicable as of MY 09
- 13 - Left vent temperature sender -G150-
- 14 - Right vent temperature sender -G151-
- 16 - Up to MY 08: terminal 30A, no longer applicable as of MY 09
- 17 - Ground for sender



18 - Regulating valve for compressor of air conditioning system - N280-

19 - Terminal 31

20 - Up to MY 08: terminal 15A, no longer applicable as of MY 09: terminal 30A

16-pin plug connection -B-

1 - + 5V for control motors

2 - Potentiometer for left temperature flap control motor -G220-

3 - Potentiometer for right temperature flap control motor -G221-

4 - Potentiometer for defroster flap control motor -G135-

5 - Potentiometer for central flap control motor -G112-

6 - Potentiometer for re-circulating air flap control motor -G143-
(no longer applicable as of 05.07)

7 - Potentiometer for air flow flap control motor -G113- (no longer applicable as of 05.07)

8 - Left footwell vent temperature sender -G261-

9 - Right footwell vent temperature sender -G262-

10 - Fresh air intake duct temperature sensor -G89- (no longer applicable as of 05.05)

11 - Evaporator vent temperature sender -G263-

14 - Signal ground potentiometer

16-pin plug connection -C-

1 - Left temperature flap control motor -V158-

2 - Left temperature flap control motor -V158-

3 - Defroster flap control motor -V107-

4 - Defroster flap control motor -V107-

5 - Central flap control motor -V70- , person flow

6 - Central flap control motor -V70- , footwell

7 - Re-circulating air flap control motor -V113- , re-circulating air mode actuation

8 - Re-circulating air flap control motor -V113- , fresh air actuation

9 - Air flow flap control motor -V71-

10 - Air flow flap control motor -V71-

11 - Right temperature flap control motor -V159-

12 - Right temperature flap control motor -V159-

15 - Fresh air blower -V2-

16 - Fresh air blower - V2- , signal

8.7 Disassembling and assembling heating and air conditioning unit (Climatronic)



Note

Summary of components - Control motors on right-hand drive vehicles ⇒ [page 105](#) .

1 - Control motor of centre flap -V70-

- ☐ removing and installing
⇒ [page 119](#)

2 - Left temperature flap control motor -V158-

- ☐ removing and installing
⇒ [page 116](#)

3 - Defroster flap control motor -V107-

- ☐ removing and installing
⇒ [page 115](#)

4 - Support

5 - Cover

6 - Re-circulating air flap control motor -V113-

- ☐ removing and installing
⇒ [page 113](#)
- ☐ no longer fitted on vehicles manufactured as of 05.07 and its function is replaced by the control motor -V71-

7 - Control motor of air flow flap -V71- or control motor of air flow flap and re-circulating air flap -V71-

- ☐ removing and installing
⇒ [page 114](#)

8 - Housing for air inlet

- ☐ with re-circulating air flap
- ☐ with stored pressure flap (Climatronic)

9 - Housing - top part

10 - Housing - bottom part

11 - Evaporator

- ☐ removing and installing ⇒ [page 95](#)

12 - Hose for glove compartment cooling

13 - Fresh air blower -V2- with series resistor for fresh air blower with overheating fuse -N24-

- ☐ removing and installing ⇒ [page 13](#)

14 - Dust and pollen filter

- ☐ Also filter version with odour insert, see ⇒ Catalogue of Original Parts
- ☐ removing and installing ⇒ [page 14](#)

15 - Cover

- ☐ for dust and pollen filter

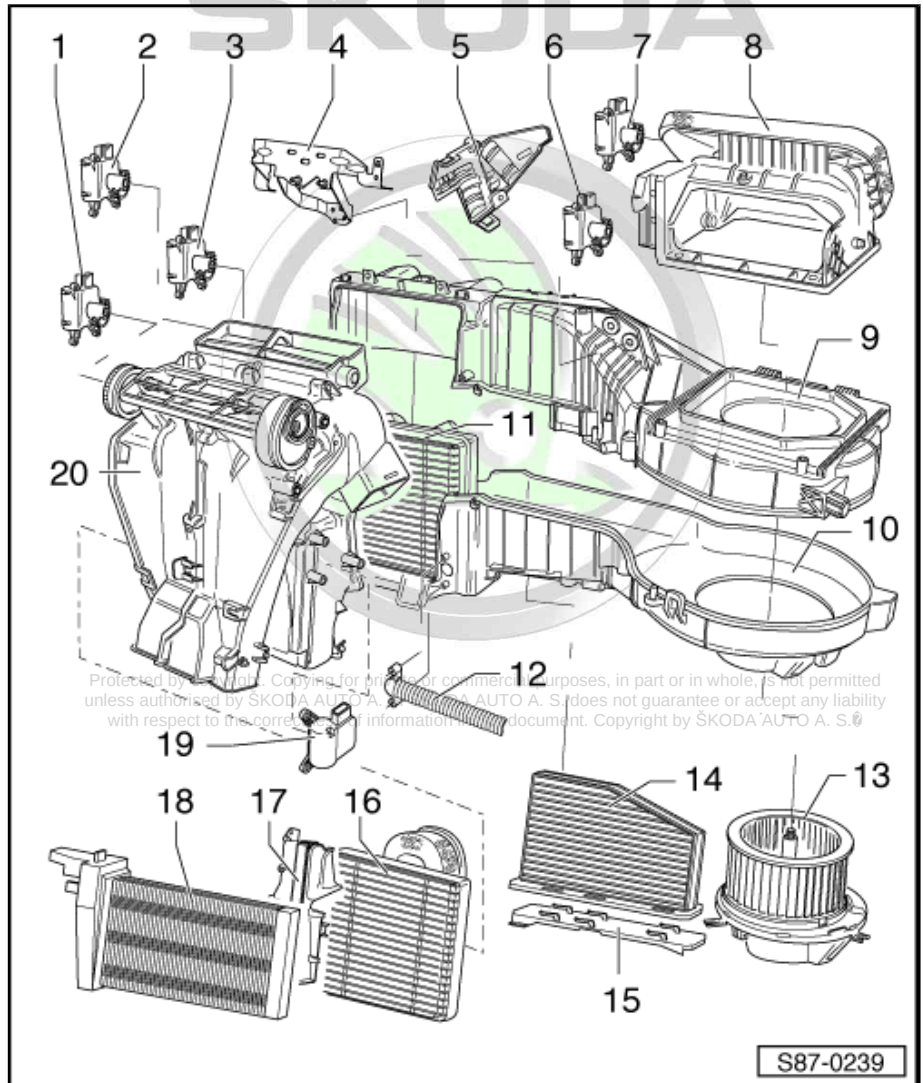
16 - Heat exchanger

- ☐ removing and installing ⇒ [page 15](#)

17 - Heat exchanger trim panel

18 - Heating element for air auxiliary heating -Z35-

- ☐ only fitted to certain models





- ❑ removing and installing ➔ [page 19](#)

19 - Right temperature flap control motor -V159-

- ❑ removing and installing ➔ [page 118](#)

20 - Distributor housing

8.8 Removing and installing left footwell vent temperature sender -G261-

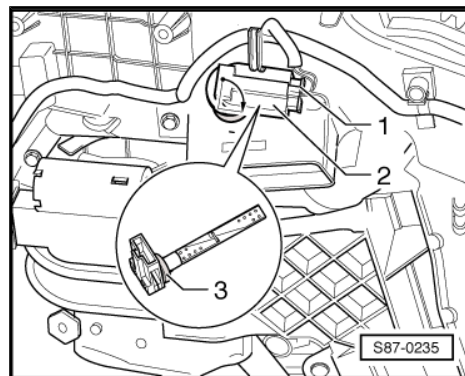
Removing

- Switch off the ignition and all electrical components.
- Remove left footwell vent ➔ [page 7](#) .
- Rotate footwell vent temperature sender -G261- -2- by 90° and remove from housing.
- Unplug connector -1-.

Install

Installation is carried out in the reverse order.

When installing, pay attention to the correct seating of the gasket ring -3-.



8.9 Removing and installing Right footwell vent temperature sender -G262-

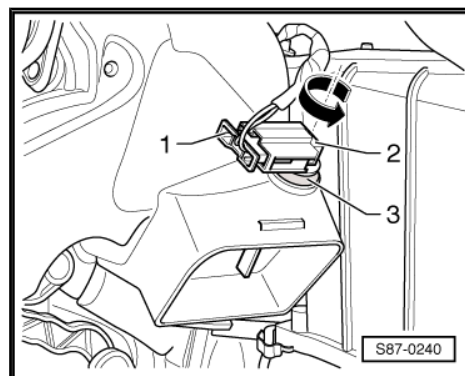
Removing

- Left-hand drive - remove the storage compartment in the dash panel on the front passenger side ➔ Body Work; Rep. gr. 70 .
- Right-hand drive - remove lower part of the dash panel insert on the driver's side ➔ Body Work; Rep. gr. 70 .
- Unplug connector -1-.
- Rotate right footwell vent temperature sender -G262- -2- by 90° and remove from housing.

Install

Installation is carried out in the reverse order.

When installing, pay attention to the correct seating of the gasket ring -3-.



8.10 Removing and installing left vent temperature sender -G150 - and right vent temperature sender -G151-

Removing

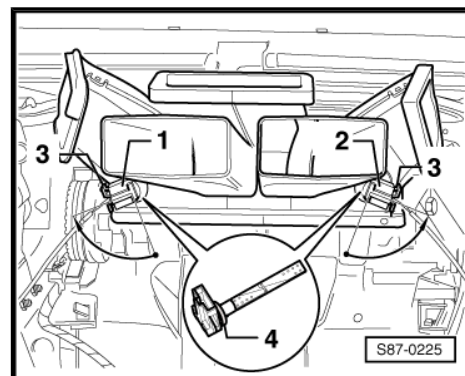
- Removing the dash panel ➔ Body Work; Rep. gr. 70 .

- Unplug connector -3-.
- Rotate left vent temperature sender -G150- -1- or right vent temperature sender -G151- -2- by 90° and remove from housing.

Install

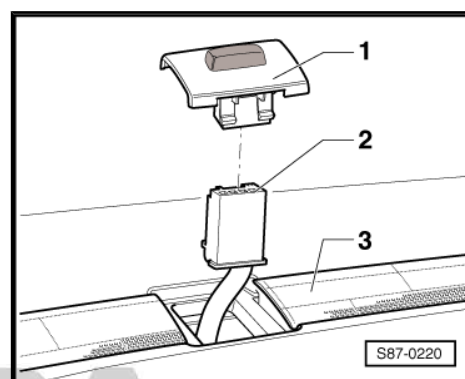
Installation is carried out in the reverse order.

- Pay attention to the correct fit of the gasket rings -4-.



8.11 Removing sunlight penetration photo-sensor -G107- and sunlight penetration photosensor 2 -G134 -

- Unclip housing with sunlight penetration photosensor -1- with disassembly wedge -3409- from the dash panel -3-.
- Unplug connector -2-.



8.12 Removing and installing the control motor of the re-circulating air flap -V113-



Note

No longer fitted on vehicles manufactured as of 05.07 and its function is replaced by the control motor -V71- .

Removing

- Switch off the ignition and all electrical components.
- Remove storage compartment on passenger side ⇒ Body Work; Rep. gr. 70 .



Note

The position of the re-circulating air flap must not be changed.

- Remove the cover for the control motors.

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- Disconnect the plug connection at the control motor of the re-circulating air flap -V113- -1-.
- Remove control motor of the re-circulating air flap -V113- -1-.

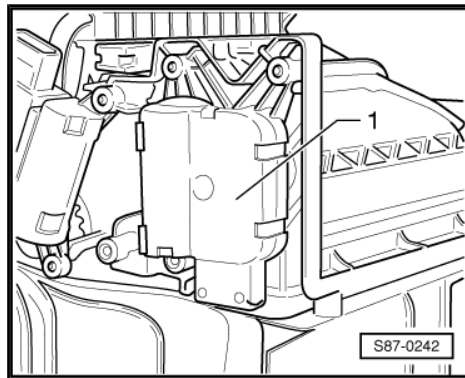
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ After installing the control motor, it is necessary to test the operation of the re-circulating air flap.
- ◆ Carry out the function „Initiate basic setting“ with the Vehicle diagnosis, measurement and information system -VAS 5051-.



8.13 Remove and install control motor of air flow flap -V71- or control motor of air flow flap and re-circulating air flap -V71-



Note

The re-circulating air flap control motor -V113- is no longer fitted on vehicles as of 05.07 and its function is replaced by the control motor -V71-.

Removing

- Remove the glove compartment ⇒ Body work; Rep. gr. 70 .



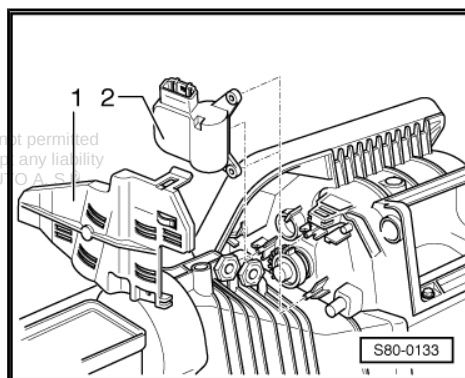
Note

The position of the control motor must not be changed.

Vehicles manufactured up to 04.07

- Remove cover -1-.
- Disconnect the plug connection at the control motor of air flow flap -V71- -2-.
- Remove air flow flap control motor -V71- -2-.

Vehicles manufactured as of 05.07



- Unscrew fixing screws -1-.
- Rotate the control motor -2- by approx. 15° -arrow-, push out it of the bushing and remove it towards you.
- Disconnect the plug connection.

Install

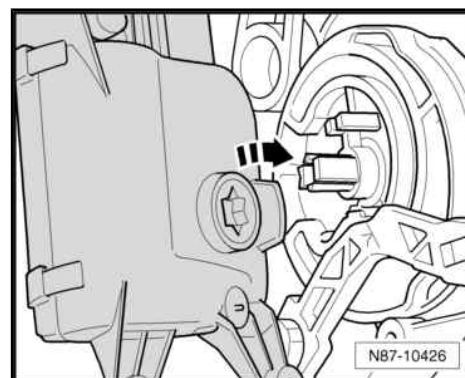
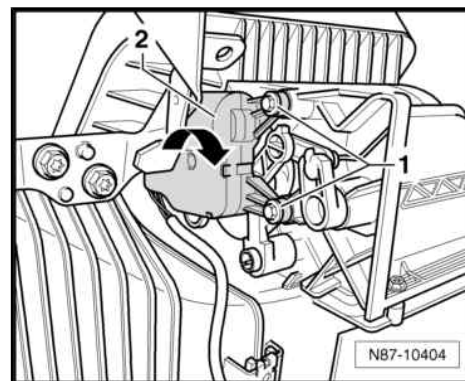
Installation is performed in the reverse order, pay attention to the following points:

- The control motor fits only in one position to the curved washer.



Note

- ◆ When replacing, carry out the function „Initiate basic setting“ with the Vehicle diagnosis, measurement and information system -VAS 5051-.
- ◆ After installing the control motor, perform a functional test.



8.14 Removing and installing the defroster flap control motor -V107-

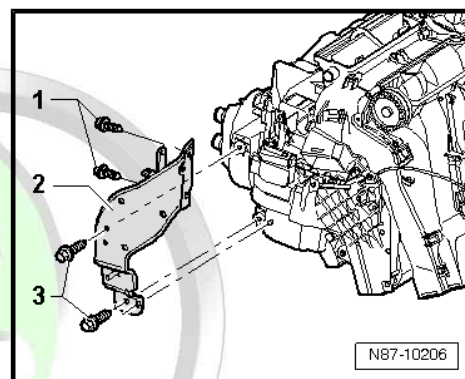
⇒ „8.14.1 Left-hand drive“, page 115

⇒ „8.14.2 Right-hand drive“, page 116

8.14.1 Left-hand drive

Removing

- Removing the dash panel ⇒ Body Work; Rep. gr. 70 .
- Remove the footwell vent on the driver's side ⇒ page 7 .
- Remove data bus diagnostic interface control unit -J533- ⇒ Electrical System; Rep. gr. 97 .
- Unscrew screws -3- and nuts -1- (10 Nm) and remove the support -2-.





- Unplug connector -C-.
- Unscrew screws -A- and remove control motor -B-.
- Slacken the lever -E- from the coupling rod -D-.

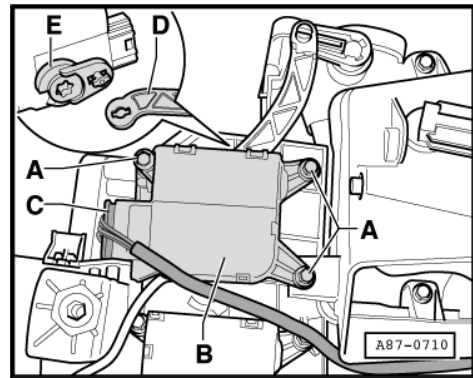
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

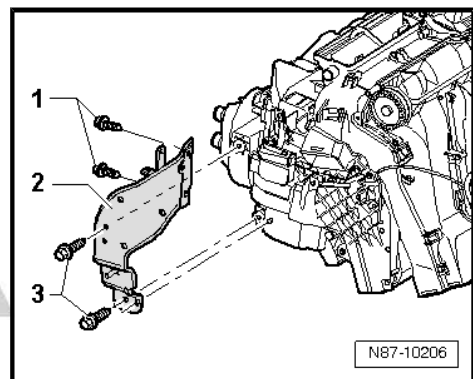
- ◆ After installing the control motor, it is necessary to test the operation of the defroster flap.
- ◆ Carry out „Initiate basic setting“ with the ⇒ Vehicle diagnostic tester.



8.14.2 Right-hand drive

- Removing the dash panel ⇒ Body Work; Rep. gr. 70 .
- Remove the footwell vent on the driver's side ⇒ [page 7](#) .
- Unscrew screws -3- and nuts -1- (10 Nm) and remove the right support -2-.

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- Unplug connector -C-.
- Unscrew screws -A- (only two screws on right-hand drive vehicles) and remove control motor -B-.
- Slacken the lever -E- from the coupling rod -D-.

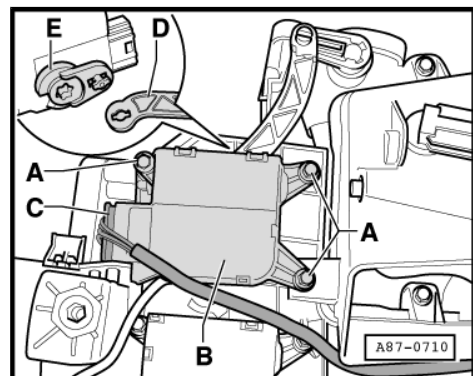
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ After installing the control motor, it is necessary to test the operation of the defroster flap.
- ◆ Carry out „Initiate basic setting“ with the ⇒ Vehicle diagnostic tester.



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8.15 Removing and installing the left temperature flap control motor -V158 -

⇒ „8.15.1 Left-hand drive“, page 117

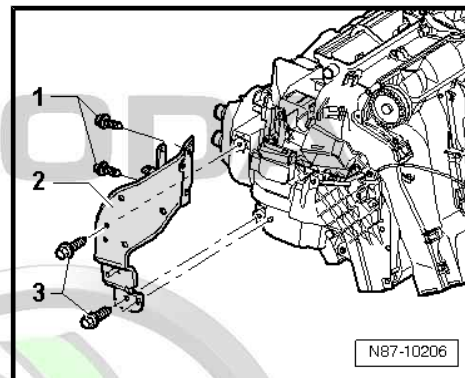
⇒ „8.15.2 Right-hand drive“, page 118

8.15.1 Left-hand drive

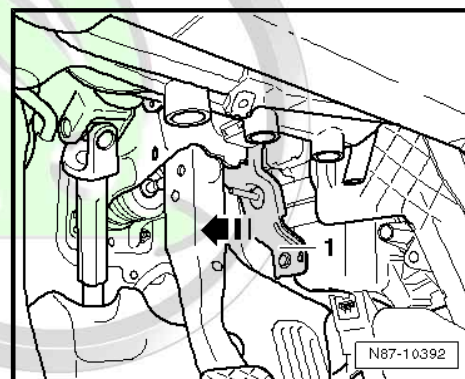
Removing

- Switch off the ignition and all electrical components.
- Remove the footwell vent on the driver's side ⇒ [page 7](#) .
- Remove the control unit for data bus diagnostic interface - J533- (attached in the area of the steering column to the bracket) ⇒ Electrical System; Rep. gr. 97 .
- Release screws - 3 - (10 Nm).

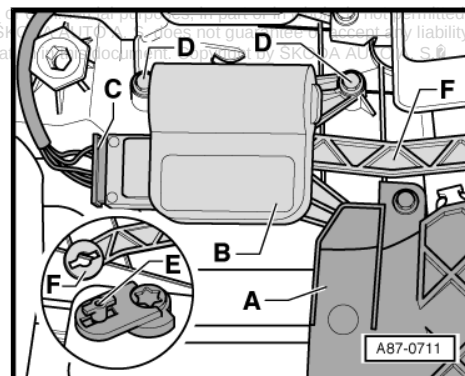
The screws (nuts) -1- are not released.



- Press the bracket -1- in the direction of the brake pedal -arrow- and fasten it there with the cable strap.



- Mark the connector -C- (the design is identical to other connectors, danger of mix-ups) and subsequently remove.
- Removing cover -A-.
- Release the fixing screws -D- (1.4 Nm) and remove the control motor -B-.
- Slacken the lever -E- of the control motor from the coupling rod -F-.



Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ After installing the control motor, it is necessary to test the operation of the left temperature flap.
- ◆ Carry out the function „Initiate basic setting“ with the Vehicle diagnosis, measurement and information system -VAS 5051- .



8.15.2 Right-hand drive

Removing

- Switch off the ignition and all electrical components.
- Remove storage compartment on passenger side ⇒ Body Work; Rep. gr. 70 .
- Remove the footwell vent on the front passenger side ⇒ [page 7](#) .
- Disconnect the plug connection at the control motor.
- Unscrew screw -1- (1.4 Nm) and unhook the control motor from the catch -arrow-.
- Slightly turn the control motor and unhook it from the control cable of the temperature flap.

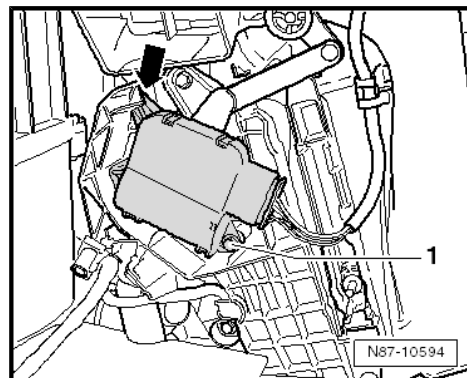
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ After installing the control motor, it is necessary to test the operation of the temperature flap.
- ◆ Carry out the function „Initiate basic setting“ with the Vehicle diagnosis, measurement and information system -VAS 5051- .



8.16 Removing and installing right temperature flap control motor -V159-

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Removing

- Switch off the ignition and all electrical components.

Left-hand drive:

- Remove storage compartment on passenger side ⇒ Body Work; Rep. gr. 70 .

Right-hand drive:

- Remove lower part of the dash panel insert on the driver's side ⇒ Body Work; Rep. gr. 70 .

All vehicles:

- Remove right footwell vent ⇒ [page 7](#) .
- Disconnect the plug connection at the right temperature flap control motor -V159- .

- Unscrew fixing screws -1- and remove right temperature flap control motor -V159- .
- Slightly turn the control motor to the left and unhook the support -2-.

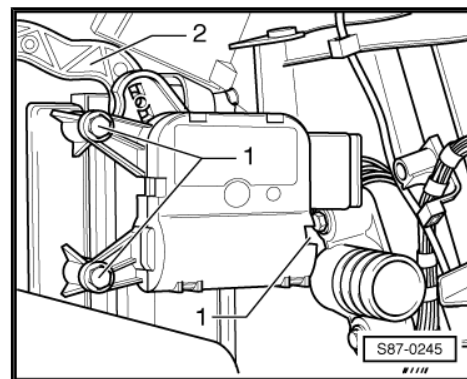
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ After installing the control motor, it is necessary to test the operation of the right temperature flap.
- ◆ Carry out the function „Initiate basic setting“ with the Vehicle diagnosis, measurement and information system -VAS 5051-.



8.17 Removing and installing the control motor of central flap -V70-

Removing

- Removing the dash panel ⇒ Body Work; Rep. gr. 70 .
- Disconnect the plug connection at the control motor of centre flap -V70- .
- Unscrew fixing screws -1- and remove control motor of centre flap -V70- .

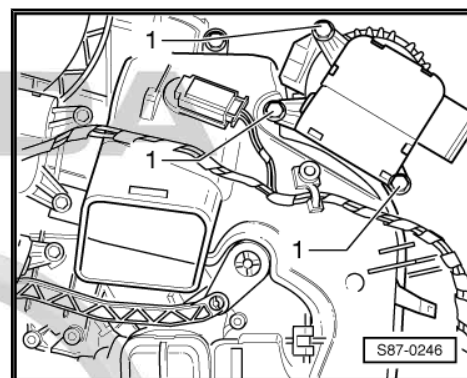
Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ After installing the control motor, it is necessary to test the operation of the central flap.
- ◆ Carry out the function „Initiate basic setting“ with the Vehicle diagnosis, measurement and information system -VAS 5051-.



8.18 Fresh air blower control unit -J126-



Note

The fresh air blower control unit -J126- is not arranged as a separate component.

Self-diagnosis and fault indication

The fresh air blower control unit -J126- is equipped with self-diagnosis, which facilitates the fault finding.

For fault finding use the ⇒ Vehicle diagnostic tester in the function „Targeted fault finding“.

Removing

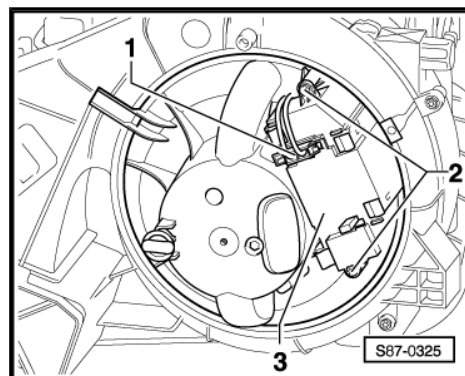
- Switch off the ignition and all electrical components.
- Remove fresh air blower -V2- ⇒ [page 13](#) .



- Unplug connector -1-.
- Release the screws -2- and remove the control unit -3-.

Install

Installation is carried out in the reverse order.



8.19 Air quality sensor -G238-

Located in the engine compartment at the air intake grid of the air conditioning system.

Only available for the Climatronic equipment.

Mounted as of CW 22.09.

8.19.1 Description of the function

- ◆ The air quality sensor recognises pollutants in the ambient air (usually petrol and/or diesel exhaust).
- ◆ The Climatronic control unit -J255- evaluates the signal from the air quality sensor -G238-. The air conditioning system is activated depending on the intensity and type of the polluted ambient air.

If the outside temperature is higher than approx. + 2°C, the air re-circulating operation is already switched on when there is a slight increase in the concentration of pollutants.

If the outside temperature is between approx. + 2°C and approx. - 5°C, the switch-over to the air re-circulating operation occurs only when there is a considerable increase in the concentration of pollutants, while at the same time the AC compressor is switched on.

If the outside temperature is lower than approx. - 5°C, the switch-over also occurs only when there is a considerable increase in the concentration of pollutants and only for approx. 15 s (the AC compressor is not switched on). If the concentration decreases, the air conditioning system is again switched-over to fresh air operation.

- ◆ The function „automatic re-circulating air mode“ can be switched off at any time.
- ◆ So that the air conditioning system does not always run in the air re-circulating operation in areas with constantly high air pollution, the sensor is self-adaptive (it adapts its sensitivity to the environmental pollution).
- ◆ In order to avoid a too frequent switching of the re-circulating/ fresh air flap, it is not immediately switched when there is a slight increase in pollution in the ambient air (the sensor transmits no request to the Climatronic control unit -J255-). Here the filter effect of the activated charcoal insert in the dust and pollen filter is sufficient.
- ◆ The air quality sensor -G238- requires approx. 30 s in order to be operational after switching on the ignition (heating period). During this period, there is no request from the sensor to the Climatronic control unit -J255- for „automatic re-circulating air mode“.

- ◆ The air quality sensor -G238- is a highly sensitive electronic component which can be destroyed through direct contact with solvents, petrol and certain chemical compounds. Therefore do not install sensors which can come into contact with such substances.

8.19.2 Removing and installing the air quality sensor -G238-

Removing

- Remove the cooling water tank cover ⇒ Body Work; Rep. gr. 64 .
- Remove the air inlet cover of the air conditioning system.
- Unplug the plug -1- from the air quality sensor -G238- .
- Release the catch -2- and rotate the air quality sensor -G238- -3- by 90° and remove.

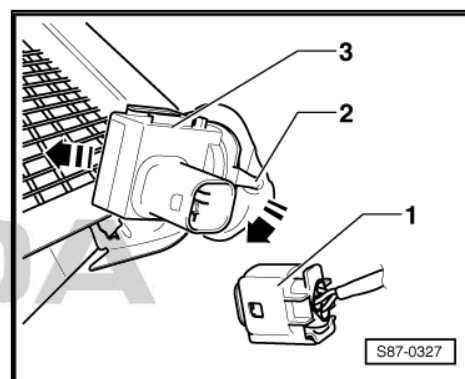
Install

Installation is carried out in the reverse order.



Note

Do not place a removed sensor in areas where it can come into contact with solvents, petrol and certain chemical compounds (liquids or vapours). This would result in permanent damage of the sensor.



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